

# EXHIBIT A

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE**

SATIUS HOLDING, INC., a Delaware  
Corporation,

Plaintiff,

v.

SAMSUNG ELECTRONICS CO., LTD, a  
Korean Corporation, and SAMSUNG  
ELECTRONICS AMERICA, INC., a New  
York Corporation,

Defendants.

Case No. 1:18-cv-00850-MN-CJB

**PLAINTIFF SATIUS HOLDING, INC.’S OBJECTIONS AND RESPONSES TO THE  
FIRST SET OF INTERROGATORIES OF DEFENDANTS SAMSUNG ELECTRONICS  
CO., LTD. AND SAMSUNG ELECTRONICS AMERICA, INC. (NOS. 1-14)**

Pursuant to Rules 26 and 33 of the Federal Rules of Civil Procedure, Plaintiff Satius Holding, Inc. (“Satius” or “Plaintiff”) hereby objects and responds to the First Set of Interrogatories (the “Interrogatories”) of Defendants Samsung Electronics Co., Ltd., and Samsung Electronics America, Inc. (together, “Samsung” or “Defendants”) as follows:

**RESERVATION OF RIGHTS AND GENERAL OBJECTIONS**

1. Plaintiff’s written responses, and any production of documents pertaining to those responses, are based upon information and writings available to it and its counsel as of the date of these Responses. Plaintiff has not completed its investigation of facts relating to this case nor has it completed discovery in this action or its preparation for trial. Moreover, discovery in this action is continuing and ongoing and Plaintiff may learn of additional facts pertaining to the Interrogatories as the case progresses. Therefore, Plaintiff reserves the right to change, amend,

or supplement its objections and responses at a later date. If further evidence is obtained which is not protected from discovery, Plaintiff reserves the right to present such evidence at the time of trial. Plaintiff's written responses, and any production of documents relating to those responses, are without prejudice to its right to supplement and/or amend its written responses and to present at trial evidence discovered hereafter.

2. Plaintiff's responses are subject to all objections as to competence, relevance, materiality, propriety, admissibility, and any and all other objections and grounds that would require the exclusion of evidence disclosed herein if the evidence were produced and sought to be introduced into evidence in Court; all of which objections and grounds are specifically reserved, and may be interposed at the time of trial or other attempt to use one or more of these responses.

3. The following General Objections apply to each and every separately numbered Interrogatory and are incorporated by reference into each and every specific response as if set forth in full in each response. From time to time a specific response may repeat a General Objection for emphasis or some other reason. The failure to repeat any General Objection in any specific response shall not be interpreted as a waiver of any General Objection to that response.

4. Plaintiff objects to each of the Definitions, Instructions and Interrogatories to the extent that they attempt or purport to call for the production of any information or documentation that is privileged, that was prepared in anticipation of litigation or for trial, that reveals communications between Plaintiff and its legal counsel, that otherwise constitutes attorney work product, privileged attorney-client communication, or that is otherwise privileged or immune from discovery. Inadvertent disclosure of any such information or documentation is not intended to and shall not constitute a waiver of any privilege or any other ground for objecting to

discovery with respect to such information, or with respect to the subject matter thereof. Nor shall such inadvertent production or disclosure waive the right of Plaintiff to object to the use of any such information during this action or in any other subsequent proceeding.

5. Plaintiff objects to each of the Definitions, Instructions and Interrogatories to the extent they call for disclosure of information that is subject to third party confidentiality agreement or privileged information under the attorney-client privilege, work product doctrine and/or common interest doctrine.

6. Plaintiff objects to each of the Definitions, Instructions and Interrogatories to the extent they are beyond the scope of the Federal Rules of Civil Procedure, the Local Rules of this Court, and the Orders of this Court.

7. Plaintiff objects to each of the Definitions, Instructions and Interrogatories to the extent they are overly broad, unduly burdensome, not relevant to the claims, counterclaims, or the defense of any party and/or are oppressive to the extent they are not proportional to the needs of the case.

8. Plaintiff objects to the each of the Definitions, Instructions and Interrogatories to the extent that they seek to require Plaintiff to provide documentation other than that which may be obtained through a reasonably diligent search of corporate records in Plaintiff's possession, custody or control.

9. Plaintiff objects to each of the Definitions, Instructions and Interrogatories to the extent they do not describe the information sought with sufficient particularity and/or are vague, ambiguous, or unlimited in scope.

10. Plaintiff objects to each of the Definitions, Instructions and Interrogatories to the extent they seek disclosure of information that is already in Defendants' possession, custody or



control, is duplicative of discovery already propounded, is available to Defendants from some other source that is more convenient, less burdensome or less expensive, and/or is available to Defendants from public sources.

11. Plaintiff objects to each of the Definitions, Instructions and Interrogatories to the extent they call for legal conclusions and/or seek to elicit testimony from fact witnesses which is properly obtained during expert discovery.

12. Plaintiff objects to the Definitions of “Plaintiff,” “Satius,” “You/Your/Yourself,” and to each Interrogatory that incorporates any of these terms, to the extent the Definitions are overbroad, unduly burdensome, not relevant to any claim or defense of any party in this action and/or is not reasonably calculated to lead to the discovery of admissible evidence. Plaintiff will construe the terms “Plaintiff,” “Satius” and “You/Your/Yourself” wherever used to refer to Satius Holding, Inc. only.

13. Plaintiff objects to the Definitions of “Person, Persons, People, and Individuals,” “Document,” “Communicate,” and “Concerning,” and to each Interrogatories that incorporates any of these terms, to the extent they are vague and ambiguous, overbroad and unduly burdensome, and purport to place obligations on Plaintiff greater than allowed for under, broader than, or inconsistent with, the Federal Rules of Civil Procedure, the Local Rules of this Court, and the Orders of this Court.

14. Plaintiff objects to the Definition of “Related Patent,” and to each Interrogatories that incorporates this term, to the extent it is overbroad, unduly burdensome, not relevant to the claim or defense of any party in this action and not reasonably calculated to lead to the discovery of admissible evidence. Plaintiff objects to this Definition to the extent it is overbroad and seeks information that exceeds the scope of relevance to the Asserted Patent.

15. Plaintiff objects to the Definition of “Prior Art,” and to each Interrogatories that incorporates this term, to the extent it is overbroad, unduly burdensome, not relevant to the claim or defense of any party in this action and not reasonably calculated to lead to the discovery of admissible evidence. Plaintiff further objects to this Definition, and to any Interrogatories that incorporates this term, to the extent it calls for a legal conclusion and/or expert opinion.

16. Plaintiff objects to the Definition of “Investor,” and to each Interrogatory that incorporates this term, to the extent it is overbroad, unduly burdensome, not relevant to the claim or defense of any party in this action and not reasonably calculated to lead to the discovery of admissible evidence.

17. Plaintiff objects to the Definitions of “relating to,” “related to,” “concerning,” “person,” “persons,” “Entity,” “entities,” “Documents,” “Communications,” or “communicated” to the extent they are vague and ambiguous, overly broad and unduly burdensome, and purport to place obligations on Plaintiff greater than allowed for under, broader than, or inconsistent with, the Federal Rules of Civil Procedure and the local rules of this Court.

18. Plaintiff objects to the Interrogatories to the extent they are compound and are comprised of multiple discrete subparts. Plaintiff will count each subpart as a separate Interrogatory pursuant to Federal Rule of Civil Procedure 33(a). Plaintiff will not respond to Interrogatories in excess of the allotted number of Interrogatories established in the Court’s Scheduling Order.

### **OBJECTIONS AND RESPONSES TO INTERROGATORIES**

Subject to and without waiving its General Objections and Objections to Definitions, Instructions and Interrogatories set forth above, each of which is specifically incorporated into the specific Responses below, Plaintiff hereby responses to Defendants’ Interrogatories as follows:

**INTERROGATORY NO. 1:**

Identify all persons and entities having knowledge of the facts relating to, and underlying, all of your contentions in your complaint and infringement contentions and/or relating to this case, and for each such person or entity, state the subject matter of and the factual basis for that person's knowledge.

**RESPONSE INTERROGATORY NO. 1:**

Plaintiff incorporates by reference its General Objections as if fully set forth herein. Plaintiff objects to this Interrogatory to the extent it is vague and ambiguous. Plaintiff objects to this Interrogatory to the extent it calls for a legal conclusion. Plaintiff objects to this Interrogatory as overly broad and unduly burdensome, and oppressive to the extent it seeks information that is not relevant to any claim or defense of any party, is disproportional to the needs of the case and/or is not reasonably calculated to lead to the discovery of admissible evidence. Plaintiff objects to this Interrogatory as compound and composed of multiple discrete subparts. Plaintiff objects to this Interrogatory as premature to the extent it seeks the disclosure of documents, information and/or expert opinion or testimony subject to the Scheduling Order in this action. Plaintiff objects to this Interrogatory to the extent that it seeks information that is not in Plaintiff's possession, custody or control. Plaintiff objects to this Interrogatory to the extent it seeks information protected by the attorney-client privilege, common interest doctrine, work product doctrine, or seeks information protected by any other applicable law, privilege, doctrine, immunity or protection.

Subject to and without waiving the foregoing general and specific objections, Plaintiff responds as follows:

Information responsive to this Interrogatory may be derived or ascertained from Plaintiff's Initial Disclosures served on December 17, 2018 and Plaintiff's Disclosures of Custodians, Data Sources, and Notice served on January 2, 2019.

**INTERROGATORY NO. 2:**

Identify any testing, study, analysis, reverse engineering, or other evaluation (collectively referred to as an "evaluation") conducted by or on behalf of Satius concerning all Accused Products, including identifying the time period of the evaluation, the specific products evaluated, the person(s) involved in the evaluation, and all written or oral reports, observations, or conclusions that were the result of the evaluation and every document relating to that evaluation.

**RESPONSE TO INTERROGATORY NO. 2:**

Plaintiff incorporates by reference its General Objections as if fully set forth herein. Plaintiff objects to this Interrogatory to the extent it is vague and ambiguous particularly as to what it purports to mean by "or other evaluation" and "every document relating to that evaluation." Plaintiff objects to this Interrogatory to the extent it calls for a legal conclusion. Plaintiff objects to this Interrogatory as overly broad and unduly burdensome, and oppressive to the extent it seeks information that is not relevant to any claim or defense of any party, is disproportional to the needs of the case and/or is not reasonably calculated to lead to the discovery of admissible evidence. Plaintiff objects to this Interrogatory as compound and composed of multiple discrete subparts. Plaintiff objects to this Interrogatory as premature to the extent it seeks the disclosure of documents, information and/or expert opinion or testimony subject to the Scheduling Order in this action. Plaintiff objects to this Interrogatory to the extent that it seeks information that is not in Plaintiff's possession, custody or control. Plaintiff objects to this Interrogatory to the extent it seeks information protected by the attorney-client privilege,

common interest doctrine, work product doctrine, or seeks information protected by any other applicable law, privilege, doctrine, immunity or protection.

Subject to and without waiving the foregoing general and specific objections, Plaintiff responds as follows:

Information responsive to this Interrogatory may be derived or ascertained from Plaintiff's Initial Claim Charts served on February 22, 2019 pursuant to the Court's Scheduling Order.

**INTERROGATORY NO. 3:**

Identify and describe in detail the facts and circumstances surrounding any ownership and/or financial interest any entity has or has had in the Asserted Patent and/or Related Patents, including: how and when those interests were acquired; the entire chain of title of any rights in the Asserted Patent and Related Patents; all transfers of such rights and any consideration associated with such transfers; the dates and terms of any written or oral agreements related to each transfer of rights; all documents and materials related to each transfer of rights; and any assignments, licenses, reversionary right, right of first refusal, right to any portion of proceeds resulting from enforcement and/or licensing, right to sue for infringement, obligation to pay maintenance fees, right to prosecute, right to control litigation, right to practice, or right to license or sub-license the Asserted Patent and/or Related Patents, further identifying all documents, witnesses and things that support Your description.

**RESPONSE TO INTERROGATORY NO. 3:**

Plaintiff incorporates by reference its General Objections as if fully set forth herein. Plaintiff objects to this Interrogatory to the extent it is vague and ambiguous particularly as to what it purports to mean by "facts and circumstances," "Related Patents," and "all documents,

witnesses and things that support Your description.” Plaintiff objects to this Interrogatory as overly broad and unduly burdensome, and oppressive to the extent it seeks information that is not relevant to any claim or defense of any party, is disproportional to the needs of the case and/or is not reasonably calculated to lead to the discovery of admissible evidence. Plaintiff objects to this Interrogatory as compound and composed of multiple discrete subparts. Plaintiff objects to this Interrogatory to the extent that it seeks information that is not in Plaintiff’s possession, custody or control. Plaintiff objects to this Interrogatory to the extent it seeks information protected by the attorney-client privilege, common interest doctrine, work product doctrine, or seeks information protected by any other applicable law, privilege, doctrine, immunity or protection. Plaintiff objects to this Interrogatory to the extent it seeks confidential, business, financial, proprietary or sensitive information, or trade secrets of third parties, which may be subject to pre-existing protective order(s) and/or confidentiality agreements or in which any third party has an expectation of privacy.

Subject to and without waiving the foregoing general and specific objections, Plaintiff responds as follows:

Pursuant to Rule 33(d) of the Federal Rules of Civil Procedure, information responsive to this Interrogatory may be derived or ascertained from the following documents: SATIUS 000389-395, SATIUS 000001-000086, and SATIUS 000087-000099.

**INTERROGATORY NO. 4:**

Describe in detail your corporate structure, including: the identity of all officers, managers, directors, and investors, and their respective ownership percentages and voting shares; any relationship or agreements between Satius, Inc. and Satius Holding, Inc.; any relationship to

parent companies or owners, subsidiaries, sister entities, partners, affiliates, and related corporations; and your divisions, hierarchal employee structures, and employees.

**RESPONSE TO INTERROGATORY NO. 4:**

Plaintiff incorporates by reference its General Objections as if fully set forth herein. Plaintiff objects to this Interrogatory to the extent it is vague and ambiguous. Plaintiff objects to this Interrogatory to the extent it calls for a legal conclusion. Plaintiff objects to this Interrogatory as overly broad and unduly burdensome, and oppressive to the extent it seeks information that is not relevant to any claim or defense of any party, is disproportional to the needs of the case and/or is not reasonably calculated to lead to the discovery of admissible evidence. Plaintiff objects to this Interrogatory as compound and composed of multiple discrete subparts. Plaintiff objects to this Interrogatory to the extent that it seeks information that is not in Plaintiff's possession, custody or control. Plaintiff objects to this Interrogatory to the extent it seeks information that is in the public domain. Plaintiff objects to this Interrogatory to the extent it seeks information protected by the attorney-client privilege, common interest doctrine, work product doctrine, or seeks information protected by any other applicable law, privilege, doctrine, immunity or protection.

Subject to and without waiving the foregoing general and specific objections, Plaintiff responds as follows: Charles Abraham and Nandor Schoffer are officers of Satius Holding, Inc. Pursuant to Rule 33(d) of the Federal Rules of Civil Procedure, additional information responsive to this Interrogatory may be derived or ascertained from the following documents: SATIUS 000389-395.

**INTERROGATORY NO. 5:**

Describe in detail all licenses relating to, or any attempts to license, sell, assign, or otherwise transfer any rights relating to, the Asserted Patent, the Related Patents, any other patent in the field of impedance matching, and/or any other patent relating to the subject matter of the Asserted Patent, including: the amount of the payment received or proposed for each license; the date of the payment or proposed payment; the entity making or proposed to make the payment; whether the payment or proposed payment was based on sales or revenue and, if so, the amount of those sales or revenues; the product or services for which the payment was made or proposed; whether licensed products were marked with the Asserted Patent number, any Related Patents numbers, and/or any other patent numbers; if any royalty rate or rates were used or proposed to determine the payment amount or proposed payment amount, and, if so, what those royalty rates were or were proposed to be.

**RESPONSE TO INTERROGATORY NO. 5:**

Plaintiff incorporates by reference its General Objections as if fully set forth herein. Plaintiff objects to this Interrogatory to the extent it is vague and ambiguous particularly as to what it purports to mean by “relating to,” “any attempts to,” “any rights relating to,” “Related Patents,” and “any other patent in the field of impedance matching,” and “any other patent numbers.” Plaintiff objects to this Interrogatory to the extent it calls for a legal conclusion. Plaintiff objects to this Interrogatory as overly broad and unduly burdensome, and oppressive to the extent it seeks information that is not relevant to any claim or defense of any party, is disproportional to the needs of the case and/or is not reasonably calculated to lead to the discovery of admissible evidence. Plaintiff objects to this Interrogatory as compound and composed of multiple discrete subparts. Plaintiff objects to this Interrogatory to the extent that it



seeks information that is not in Plaintiff's possession, custody or control. Plaintiff objects to this Interrogatory to the extent it seeks information protected by the attorney-client privilege, common interest doctrine, work product doctrine, or seeks information protected by any other applicable law, privilege, doctrine, immunity or protection. Plaintiff objects to this Interrogatory to the extent it seeks confidential, business, financial, proprietary or sensitive information, or trade secrets of third parties, which may be subject to pre-existing protective order(s) and/or confidentiality agreements or in which any third party has an expectation of privacy.

Subject to and without waiving the foregoing general and specific objections, Plaintiff responds as follows:

Satius, Inc. assigned the Asserted Patent to Satius Holding, Inc. on January 4, 2008. *See* SATIUS 000389-395. Pursuant to Rule 33(d) of the Federal Rules of Civil Procedure, further information responsive to this Interrogatory may be derived or ascertained from the following documents: SATIUS 000359-388.

**INTERROGATORY NO. 6:**

For the Asserted Patent, state the earliest date(s) on which you contend Samsung became aware of, or was placed on notice of, the Asserted Patent and Samsung's alleged infringement of the Asserted Patent and describe all facts concerning these contentions. If you contend that an alleged predecessor-in-interest gave Samsung notice of the Asserted Patent or Samsung's alleged infringement of the Asserted Patent, identify all facts concerning such contention and the persons knowledgeable about your response.

**RESPONSE TO INTERROGATORY NO. 6:**

Plaintiff incorporates by reference its General Objections as if fully set forth herein. Plaintiff objects to this Interrogatory to the extent it is vague and ambiguous. Plaintiff objects to

this Interrogatory to the extent it calls for a legal conclusion. Plaintiff objects to this Interrogatory as overly broad and unduly burdensome, and oppressive to the extent it seeks information that is not relevant to any claim or defense of any party, is disproportional to the needs of the case and/or is not reasonably calculated to lead to the discovery of admissible evidence. Plaintiff objects to this Interrogatory as premature to the extent it seeks the disclosure of documents, information and/or expert opinion or testimony subject to the Scheduling Order in this action. Plaintiff objects to this Interrogatory to the extent that it seeks information that is not in Plaintiff's possession, custody or control. Plaintiff objects to this Interrogatory to the extent it seeks information protected by the attorney-client privilege, common interest doctrine, work product doctrine, or seeks information protected by any other applicable law, privilege, doctrine, immunity or protection.

Subject to and without waiving the foregoing general and specific objections, Plaintiff responds as follows:

Defendants were placed on notice of the Asserted Patent, and their infringement thereof, at least as early as the date of service of the Complaint in this action. Plaintiff's investigation of this matter and discovery in this case is ongoing and thus Plaintiff's response to this Interrogatory will be supplemented as additional information becomes known to it.

**INTERROGATORY NO. 7:**

Explain in detail all damages that Satius has allegedly incurred from the alleged infringement, including the total dollar amount of damages, the method of computation, the basis for these alleged damages (e.g., total number of accused Samsung products made, used, offered for sale, or sold in the United State or imported into the United States, reasonable royalty, royalty rate, royalty base, and the smallest saleable patent practicing unit), the incremental value that

You contend the patented invention adds to each of the Accused Products, and the full factual and legal bases supporting Your damages claims.

**RESPONSE TO INTERROGATORY NO. 7:**

Plaintiff incorporates by reference its General Objections as if fully set forth herein. Plaintiff objects to this Interrogatory to the extent it is vague and ambiguous. Plaintiff objects to this Interrogatory to the extent it calls for a legal conclusion. Plaintiff objects to this Interrogatory as premature to the extent it seeks the disclosure of documents, information and/or expert opinion or testimony subject to the Scheduling Order in this action. Plaintiff objects to this Interrogatory as overly broad and unduly burdensome, and oppressive to the extent it seeks information that is not relevant to any claim or defense of any party, is disproportional to the needs of the case and/or is not reasonably calculated to lead to the discovery of admissible evidence. Plaintiff objects to this Interrogatory as compound and composed of multiple discrete subparts. Plaintiff objects to this Interrogatory as premature to the extent it seeks the disclosure of documents, information and/or expert opinion or testimony subject to the Scheduling Order in this action. Plaintiff objects to this Interrogatory to the extent that it seeks information that is not in Plaintiff's possession, custody or control. Plaintiff objects to this Interrogatory to the extent it seeks information protected by the attorney-client privilege, common interest doctrine, work product doctrine, or seeks information protected by any other applicable law, privilege, doctrine, immunity or protection.

Subject to and without waiving the foregoing general and specific objections, Plaintiff responds as follows:

This Interrogatory is premature as it seeks disclosure of expert testimony and opinion that is subject to the Court's Scheduling Order and in particular, the Scheduling Order provides that

Plaintiff will serve an expert report on damages after the completion of fact discovery. Plaintiff incorporates by reference into this Response any expert report that it will serve on damages pursuant to the deadlines set forth in the Scheduling Order. Information otherwise responsive to this Interrogatory may be derived or ascertained from Plaintiff's Damages Model discussed in its Identification of Accused Products and Patent, served on December 21, 2018 pursuant to Section 7(a) of the Scheduling Order. Plaintiff's investigation of this matter is ongoing, as is discovery in this action, and Plaintiff will comply with Federal Rule of Civil Procedure 26(e) and reserves its right to amend, modify and supplement this Response should additional information become known to it.

**INTERROGATORY NO. 8:**

To the extent that you claim entitlement to damages for any activities occurring outside of the United States, state your full factual and legal contentions as to which activities occurring outside of the United States you accuse of infringement and why you contend such activities constitute infringement, and, for each such activity individually, the amount of damages you contend you should be awarded for such activity, the method of computation for the foregoing, the basis for these alleged damages (e.g., total number of accused Samsung products made, used, offered for sale, or sold in which countries or imported into which countries, reasonable royalty, royalty rate, royalty base, and the smallest saleable patent practicing unit), the incremental value that You contend the patented invention adds to each of the Accused Products, and all facts and legal contentions supporting your claim for the foregoing.

**RESPONSE TO INTERROGATORY NO. 8:**

Plaintiff incorporates by reference its General Objections as if fully set forth herein. Plaintiff objects to this Interrogatory to the extent it is vague and ambiguous. Plaintiff objects to

this Interrogatory to the extent it calls for a legal conclusion. Plaintiff objects to this Interrogatory as premature to the extent it seeks the disclosure of documents, information and/or expert opinion or testimony subject to the Scheduling Order in this action. Plaintiff objects to this Interrogatory as overly broad and unduly burdensome, and oppressive to the extent it seeks information that is not relevant to any claim or defense of any party, is disproportional to the needs of the case and/or is not reasonably calculated to lead to the discovery of admissible evidence. Plaintiff objects to this Interrogatory as compound and composed of multiple discrete subparts. Plaintiff objects to this Interrogatory as premature to the extent it seeks the disclosure of documents, information and/or expert opinion or testimony subject to the Scheduling Order in this action. Plaintiff objects to this Interrogatory to the extent that it seeks information that is not in Plaintiff's possession, custody or control. Plaintiff objects to this Interrogatory to the extent it seeks information protected by the attorney-client privilege, common interest doctrine, work product doctrine, or seeks information protected by any other applicable law, privilege, doctrine, immunity or protection.

Subject to and without waiving the foregoing general and specific objections, Plaintiff responds as follows:

This Interrogatory is premature as it seeks disclosure of expert testimony and opinion that is subject to the Court's Scheduling Order and in particular, the Scheduling Order provides that Plaintiff will serve an expert report on damages after the completion of fact discovery. Plaintiff incorporates by reference into this Response any expert report that it will serve on damages pursuant to the deadlines set forth in the Scheduling Order. Information otherwise responsive to this Interrogatory may be derived or ascertained from Plaintiff's Damages Model discussed in its Identification of Accused Products and Patent, served on December 21, 2018 pursuant to Section

7(a) of the Scheduling Order. Plaintiff's investigation of this matter is ongoing, as is discovery in this action, and Plaintiff will comply with Federal Rule of Civil Procedure 26(e) and reserves its right to amend, modify and supplement this Response should additional information become known to it.

**INTERROGATORY NO. 9:**

Describe in detail all facts and circumstances supporting your contention that you are entitled to injunctive relief against Samsung in this action, including the facts and circumstances supporting your contention that you will suffer irreparable harm unless the Court enjoins Samsung from the allegedly infringing activities.

**RESPONSE TO INTERROGATORY NO. 9:**

Plaintiff incorporates by reference its General Objections as if fully set forth herein. Plaintiff objects to this Interrogatory to the extent it is vague and ambiguous. Plaintiff objects to this Interrogatory to the extent it calls for a legal conclusion. Plaintiff objects to this Interrogatory as overly broad and unduly burdensome, and oppressive to the extent it seeks information that is not relevant to any claim or defense of any party, is disproportional to the needs of the case and/or is not reasonably calculated to lead to the discovery of admissible evidence. Plaintiff objects to this Interrogatory as compound and composed of multiple discrete subparts. Plaintiff objects to this Interrogatory as premature to the extent it seeks the disclosure of documents, information and/or expert opinion or testimony subject to the Scheduling Order in this action. Plaintiff objects to this Interrogatory to the extent that it seeks information that is not in Plaintiff's possession, custody or control. Plaintiff objects to this Interrogatory to the extent it seeks information protected by the attorney-client privilege, common interest doctrine, work

product doctrine, or seeks information protected by any other applicable law, privilege, doctrine, immunity or protection.

Subject to and without waiving the foregoing general and specific objections, Plaintiff responds as follows:

This Interrogatory is premature as it seeks disclosure of expert testimony and opinion that is subject to the Court's Scheduling Order. Plaintiff incorporates by reference into this Response any expert report that addresses its request for injunctive relief, pursuant to the deadlines set forth in the Scheduling Order. Notwithstanding the foregoing objections, Plaintiff is entitled to injunctive relief for at least the following reasons. Monetary damages alone are not adequate or sufficient to compensate Plaintiff for Defendants' ongoing infringement. Defendants have benefited from the infringing use of the Asserted Patent as they have increased their market share and advanced their position in the marketplace through their infringing activities that have capitalized on the patented technology captured by the Asserted Patent. Plaintiff's ability to exclude others from practicing its patented technology would be severely prejudiced and irreparably harmed if it were not granted injunctive relief as Defendants could continue to unjustifiably profit from its infringement of the Asserted Patent. Moreover, the public maintains an interest in ensuring that judicial protection of intellectual property rights is enforced and that interest far outweighs any potential interest the public may have in purchasing infringing products such as the Accused Products.

Plaintiff's investigation of this matter is ongoing, as is discovery in this action, and Plaintiff will comply with Federal Rule of Civil Procedure 26(e) and reserves its right to amend, modify and supplement this Response should additional information become known to it.

**INTERROGATORY NO. 10:**

Describe in detail all facts related to any valuation of this lawsuit, or any assessment of the potential or likely monetary or other damages that could be recovered by you as a result of this lawsuit.

**RESPONSE TO INTERROGATORY NO. 10:**

Plaintiff incorporates by reference its General Objections as if fully set forth herein. Plaintiff objects to this Interrogatory to the extent it is vague and ambiguous particularly as to what it purports to mean by “valuation of this lawsuit” and “other damages.” Plaintiff objects to this Interrogatory to the extent it calls for a legal conclusion. Plaintiff objects to this Interrogatory as overly broad and unduly burdensome, and oppressive to the extent it seeks information that is not relevant to any claim or defense of any party, is disproportional to the needs of the case and/or is not reasonably calculated to lead to the discovery of admissible evidence. Plaintiff objects to this Interrogatory as duplicative of other requests served in this action. Plaintiff objects to this Interrogatory as compound and composed of multiple discrete subparts. Plaintiff objects to this Interrogatory as premature to the extent it seeks the disclosure of documents, information and/or expert opinion or testimony subject to the Scheduling Order in this action. Plaintiff objects to this Interrogatory to the extent that it seeks information that is not in Plaintiff’s possession, custody or control. Plaintiff objects to this Interrogatory to the extent it seeks information protected by the attorney-client privilege, common interest doctrine, work



product doctrine, or seeks information protected by any other applicable law, privilege, doctrine, immunity or protection.

Subject to and without waiving the foregoing general and specific objections, Plaintiff responds as follows:

Plaintiff does not understand the meaning or scope of this Interrogatory and invites Defendants to meet and confer to discuss the appropriate scope and meaning of this Interrogatory.

**INTERROGATORY NO. 11:**

Identify and describe in detail all communications with any person or party discussing or relating to the Asserted Patent, the Related Patents, Samsung, the Accused Products, this litigation, and/or any allegations that the Asserted Patent and/or Related Patents are practiced by any entities.

**RESPONSE TO INTERROGATORY NO. 11:**

Plaintiff incorporates by reference its General Objections as if fully set forth herein. Plaintiff objects to this Interrogatory to the extent it is vague and ambiguous. Plaintiff objects to this Interrogatory to the extent it calls for a legal conclusion. Plaintiff objects to this Interrogatory as overly broad and unduly burdensome, and oppressive to the extent it seeks information that is not relevant to any claim or defense of any party, is disproportional to the needs of the case and/or is not reasonably calculated to lead to the discovery of admissible evidence. Plaintiff objects to this Interrogatory as compound and composed of multiple discrete subparts. Plaintiff objects to this Interrogatory as premature to the extent it seeks the disclosure of documents, information and/or expert opinion or testimony subject to the Scheduling Order in this action. Plaintiff objects to this Interrogatory to the extent that it seeks information that is not

in Plaintiff's possession, custody or control. Plaintiff objects to this Interrogatory to the extent it seeks information protected by the attorney-client privilege, common interest doctrine, work product doctrine, or seeks information protected by any other applicable law, privilege, doctrine, immunity or protection. Plaintiff objects to this Interrogatory to the extent it seeks confidential, business, financial, proprietary or sensitive information, or trade secrets of third parties, which may be subject to pre-existing protective order(s) and/or confidentiality agreements or in which any third party has an expectation of privacy.

Subject to and without waiving the foregoing general and specific objections, Plaintiff responds as follows:

To the extent any information responsive to this Interrogatory exists, Plaintiff will provide or produce such information and documents pursuant to Rule 33(d) of the Federal Rules of Civil Procedure upon the Parties' agreement on an ESI Order.

**INTERROGATORY NO. 12:**

State the earliest priority date that you contend each Asserted Claim of the Asserted Patent is entitled to and the factual and legal basis for that contention, including the circumstances of how and when the claimed subject matter was conceived and diligently reduced to practice, and identify all witnesses, facts, and documents supporting Your contentions.

**RESPONSE TO INTERROGATORY NO. 12:**

Plaintiff incorporates by reference its General Objections as if fully set forth herein. Plaintiff objects to this Interrogatory to the extent it is vague and ambiguous. Plaintiff objects to this Interrogatory to the extent it calls for a legal conclusion. Plaintiff objects to this Interrogatory as overly broad and unduly burdensome, and oppressive to the extent it seeks information that is not relevant to any claim or defense of any party, is disproportional to the

needs of the case and/or is not reasonably calculated to lead to the discovery of admissible evidence. Plaintiff objects to this Interrogatory as compound and composed of multiple discrete subparts. Plaintiff objects to this Interrogatory as premature to the extent it seeks the disclosure of documents, information and/or expert opinion or testimony subject to the Scheduling Order in this action. Plaintiff objects to this Interrogatory to the extent that it seeks information that is not in Plaintiff's possession, custody or control. Plaintiff objects to this Interrogatory to the extent it seeks information protected by the attorney-client privilege, common interest doctrine, work product doctrine, or seeks information protected by any other applicable law, privilege, doctrine, immunity or protection.

Subject to and without waiving the foregoing general and specific objections, Plaintiff responds as follows:

The '385 Patent is entitled to a priority date of at least July 6, 2000. As set forth in the '385 Patent and its prosecution history, U.S. Patent Application No. 09/610,728 was filed on July 6, 2000 and issued as U.S. Patent No. 6,711,385 on March 23, 2004 to Charles Abraham. Pursuant to Rule 33(d) of the Federal Rules of Civil Procedure, additional information responsive to this Interrogatory may be derived or ascertained from the following documents: SATIUS 000001-000086 and SATIUS 000087-000099.

**INTERROGATORY NO. 13:**

For each Asserted Claim that you contend is valid, describe in detail the complete legal and factual bases for your contention, including your complete factual and legal responses to the invalidity contentions served by Samsung and a chart that overcomes each prior art reference Samsung asserts as invalidating each asserted claim, on a limitation by limitation basis.

**RESPONSE TO INTERROGATORY NO. 13:**

Plaintiff incorporates by reference its General Objections as if fully set forth herein. Plaintiff objects to this Interrogatory to the extent it is vague and ambiguous particularly as to what it purports to mean by “complete legal and factual bases” and “overcomes.” Plaintiff objects to this Interrogatory to the extent it calls for a legal conclusion. Plaintiff objects to this Interrogatory as premature to the extent it seeks the disclosure of documents, information and/or expert opinion or testimony subject to the Scheduling Order in this action. Plaintiff objects to this Interrogatory as overly broad and unduly burdensome, and oppressive to the extent it seeks information that is not relevant to any claim or defense of any party, is disproportional to the needs of the case and/or is not reasonably calculated to lead to the discovery of admissible evidence. Plaintiff objects to this Interrogatory as compound and composed of multiple discrete subparts. Plaintiff objects to this Interrogatory as premature to the extent it seeks the disclosure of documents, information and/or expert opinion or testimony subject to the Scheduling Order in this action. Plaintiff objects to this Interrogatory to the extent it seeks information protected by the attorney-client privilege, common interest doctrine, work product doctrine, or seeks information protected by any other applicable law, privilege, doctrine, immunity or protection.

Subject to and without waiving the foregoing general and specific objections, Plaintiff responds as follows:

This Interrogatory is premature as it seeks disclosure of expert testimony and opinion that is subject to the Court's Scheduling Order. Plaintiff incorporates by reference into this Response any expert report that it will serve on the validity of the Asserted Patent and any rebuttal to any expert report Defendants serve on any purported invalidity of the Asserted Patent, pursuant to the deadlines set forth in the Scheduling Order. Plaintiff's investigation of this matter is ongoing, as is discovery in this action, and Plaintiff will comply with Federal Rule of Civil Procedure 26(e) and reserves its right to amend, modify and supplement this Response should additional information become known to it.

**INTERROGATORY NO. 14:**

For each Asserted Claim, identify and describe in detail every objective indicia of nonobviousness that you contend supports the patentability of each Asserted Claim, including all of your factual and legal bases for such contentions and identification of persons knowledgeable about such contentions.

**RESPONSE TO INTERROGATORY NO. 14:**

Plaintiff incorporates by reference its General Objections as if fully set forth herein. Plaintiff objects to this Interrogatory to the extent it is vague and ambiguous particularly as to what it purports to mean by "every," "all of your factual and legal bases," and "such contentions." Plaintiff objects to this Interrogatory to the extent it calls for a legal conclusion. Plaintiff objects to this Interrogatory as premature to the extent it seeks the disclosure of documents, information and/or expert opinion or testimony subject to the Scheduling Order in this action. Plaintiff objects to this Interrogatory as overly broad and unduly burdensome, and oppressive to the extent it seeks information that is not relevant to any claim or defense of any party, is disproportional to the needs of the case and/or is not reasonably calculated to lead to the

discovery of admissible evidence. Plaintiff objects to this Interrogatory as compound and composed of multiple discrete subparts. Plaintiff objects to this Interrogatory as premature to the extent it seeks the disclosure of documents, information and/or expert opinion or testimony subject to the Scheduling Order in this action. Plaintiff objects to this Interrogatory to the extent it seeks information protected by the attorney-client privilege, common interest doctrine, work product doctrine, or seeks information protected by any other applicable law, privilege, doctrine, immunity or protection. Plaintiff objects to this Interrogatory to the extent it seeks confidential, business, financial, proprietary or sensitive information, or trade secrets of third parties, which may be subject to pre-existing protective order(s) and/or confidentiality agreements or in which any third party has an expectation of privacy.

Subject to and without waiving the foregoing general and specific objections, Plaintiff responds as follows:

This Interrogatory is premature as it seeks disclosure of expert testimony and opinion that is subject to the Court's Scheduling Order and in particular, subject to an expert report to be served by Plaintiff that Defendants specifically requested during the Parties' Case Management Conference before the Court on December 3, 2018. Plaintiff incorporates by reference into this Response any expert report that it will serve on objective indicial of nonobviousness, pursuant to the deadlines set forth in the Scheduling Order.

Dated: July 15, 2019

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SATIUS HOLDING, INC.

**CERTIFICATE OF SERVICE**

I, Paul J. Andre, hereby certify that, prior to 6 p.m. on July 15, 2019, the within document was served on the following counsel as indicated:

**VIA ELECTRONIC MAIL**

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/s/ Paul J. Andre  
Paul J. Andre



# EXHIBIT B

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE**

SATIUS HOLDING, INC.,

*Plaintiff,*

v.

SAMSUNG ELECTRONICS CO., LTD.,  
and SAMSUNG ELECTRONICS  
AMERICA, INC.,

*Defendants.*

C.A. No. 18-850-MN-CJB

**JURY TRIAL DEMANDED**

**DEFENDANTS' FIRST SET OF INTERROGATORIES TO PLAINTIFF  
(NOS. 1-14)**

Pursuant to Federal Rules of Civil Procedure 26 and 33, Defendants Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. (together, “Samsung” or “Defendants”) hereby request that Plaintiff Satius Holding, Inc. (“Satius”) answer fully in writing and under oath the following interrogatories within thirty (30) days after service hereof. Pursuant to Rule 26(e) of the Federal Rules of Civil Procedure, these interrogatories are continuing in nature and therefore require Satius to furnish supplemental answers whenever it obtains different or additional knowledge, information, or belief relative to these interrogatories.

**DEFINITIONS**

1. **Plaintiff or Satius.** The term “Plaintiff” or “Satius” means Satius Holding, Inc., and all past and present direct and indirect parents, subsidiaries, affiliates, divisions, business units, predecessors in interest (*e.g.*, Satius Inc., Wire21, Inc., Abraham Communications, and Videocom, Inc.), employees, agents, representatives, directors, or officers.

2. **Defendants.** The term “Defendants” means Samsung Electronics Co., Ltd., and Samsung Electronics America, Inc.

3. **You/Your/Yourself.** The terms “You,” “Your,” and “Yourself” mean Plaintiff and any and all of its agents, representatives, employees, servants, consultants, contractors, subcontractors, investigators, attorneys, and any other persons or entities acting or purporting to act on behalf of the agency.

4. **Person, Persons, People, and Individual.** The terms “person,” “persons,” “people,” and “individual” mean any natural person or any legal entity, including, without limitation, any business or governmental entity or association.

5. **All/Any/Each.** The terms “all,” “any,” and “each” shall each be construed as encompassing any and all.

6. **And/Or.** The connectives “and” and “or” shall be construed either disjunctively or conjunctively as necessary to bring within the scope of the discovery request all responses that might otherwise be construed to be outside of its scope.

7. **Number.** The use of the singular form of any word includes the plural and vice versa.

8. **Document.** The word “document” includes all things within the meaning and scope of that term as used in the Federal Rules of Civil Procedure and the Federal Rules of Evidence, and includes without limitation the following items, whether printed, recorded, microfilmed, stored electronically or optically, or reproduced by any process, or written or produced by hand, or recorded in any other way, and whether or not claimed to be privileged or confidential or personal: letters; correspondence; memoranda; notes; reports; records; agreements; working papers; communications (including intradepartmental and

interdepartmental communications); summaries or records of personal conversations; calendars; diaries; forecasts; statistical statements; graphs; laboratory or research reports and notebooks; charts; minutes or records of conferences; expressions or statements of policy; lists of persons attending meetings or conferences; reports of or summaries of interviews; opinions or reports of consultants; patents and patent application materials; material and manufacturing specifications; material packaging; manufacturing logs; functional specifications; equipment specifications and operating information; product packaging; designs; instructions; advertisements; literature; memoranda of conversations; notes; data sheets; worksheets; contracts; orders; invoices; statements; bills; checks; photographs; drawings; charts; catalogs; computer files; computer discs; articles; technical support documents; application notes; advertisements; circulars; press releases; bills of sale; and tapes. This term shall include the original of a document, drafts of the document, and each copy of the document that is not identical to any copy. Any comment or notation appearing on any document, and not a part of the original text, is to be considered a separate “document.”

9. **Asserted Patent.** The term “Asserted Patent” means U.S. Patent No. 6,711,385 (the “’385 Patent”).

10. **Related Patent.** The terms “related patent” means any patent or patent application related to the Asserted Patent, including without limitation any domestic or foreign counterpart patents or patent applications, any domestic or foreign counterpart patents or patent applications relating to the technologies covered by the Asserted Patent, any domestic or foreign counterpart patents or patent application categorized or otherwise grouped by Satius as pertaining to the technologies covered by the Asserted Patent, and all domestic or foreign

counterpart patents or patent applications ever included by Satius in a portfolio, category, class, or other group containing the Asserted Patent.

11. **Asserted Claims.** The term “Asserted Claims” means claims 1, 11, and 18 of the ’385 Patent, as well as any claim of the ’385 Patent that Plaintiff later asserts.

12. **Accused Products or Accused Instrumentalities.** The term “Accused Products” or “Accused Instrumentalities” includes all of the products listed in Satius’s Identification of Accused Products and Patent under the sub-heading “I. Accused Products,” and any additional products that Satius later accuses of infringement of the Asserted Patent.<sup>1</sup>

13. **Prior Art.** The term “prior art” means all publications, patents, physical devices, prototypes, products, uses, sales, offer for sale, or other activity concerning the subject matter of the Asserted Patent (including, but not limited to, couplers, transformers, and impedance tuners) and existing on, or occurring at, a date such as to be relevant under any subdivision of 35 U.S.C. §§ 102 or 103 and case law interpreting 35 U.S.C. §§ 102 or 103.

14. **Infringe/Infringement.** The terms “infringe” and “infringement” means any and all types of patent infringement set forth in 35 U.S.C. § 271, and case law interpreting 35 U.S.C. § 271, including but not limited to direct infringement, contributory infringement, active inducement of infringement, literal infringement, and/or infringement under the doctrine of equivalents.

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<sup>1</sup> By including in the definition of “Accused Products” or “Accused Instrumentalities” all of the products identified in Satius’s identification of accused products and patent, Samsung does not consent to, nor waive its right to object to, any attempt by Satius to assert the Asserted Patent against, or seek discovery relating to, the foregoing products. Samsung notes that the proper scope of products that can be litigated in the case is subject to, *inter alia*, various rules and orders.

15. **Communication.** The term “communication” means any transmission of information (in the form of facts, ideas, inquiries, or otherwise) by one or more persons and/or between two or more persons by means including telephone conversation, letters, telegrams, teletypes, telexes, telecopies, electronic mail, written memoranda, face-to-face conversations, and any other written, oral, or electronic means.

16. **Produce/Provide.** The terms “produce” and “provide” mean to provide either a legible true copy of the original or any document and/or communication.

17. **Identify/state the identity of.** The terms “identify” or “state the identity of” shall mean to include in a response with respect to:

- a. A natural person—
  - i. His or her name;
  - ii. His or her last known home and business addresses and
  - iii. respective phone numbers;
  - iv. His or her current or last known employer;
  - v. His or her job or current or last known position title; and
  - vi. If applicable, his or her connection to the subject matter of the request.
- b. An entity or organization—
  - i. Its name;
  - ii. Its last known address and phone number for its principal place of business;
  - iii. Its type (*e.g.*, corporation, partnership, trust, etc.);
  - iv. Its date and place of formation; and
  - v. Its registered agent.

- c. A document—
  - i. Its production numbers;
  - ii. Its type;
  - iii. Its date;
  - iv. A detailed description of its subject matter and contents;
  - v. The identity of each author and recipient (including actual and designated recipients of copies); and
  - vi. Its location and custodian.
- d. A communication—
  - i. Its date and place;
  - ii. The person(s) who participated in it, were present during any part of it, or have knowledge about it; and
  - iii. Its substance.
- e. Any other tangible thing—
  - i. Its type (*e.g.*, computer system, software, etc.);
  - ii. Its purchase date;
  - iii. A detailed description of its subject matter;
  - iv. Who made it, if applicable; and
  - v. Its current location and custodian, *i.e.*, the person who had last knowledge, possession, custody, or control thereof.
- f. An event or act—
  - i. Its type (*e.g.*, oral communication, telephone call, meeting or conference, teletype communication, purchase, sale, etc.);

- ii. Its date, time and place;
- iii. The identity of all persons participating, attending and observing;
- iv. A detailed description of the event or act and what transpired; and
- v. The identity of any documents referenced, referred to, relied upon or created in connection with the event (including any record made of the event).

18. **Relates to/relating to/regarding/concerning.** The terms “relates to,” “relating to,” “regarding,” or “concerning” a particular subject:

- a. shall be construed in their most-inclusive sense, and
- b. any interrogatory containing one of these terms shall be considered a request that you provide information that relates to, refers to, discusses, summarizes, reflects, constitutes, contains, embodies, pertains to, mentions, consists of, comprises, shows, comments on, evidences, describes, or in any other way concerns the subject matter.

19. **Thing(s).** The term “thing(s)” has the broadest meaning allowable under Federal Rule of Civil Procedure Rule 34 and includes, without limitation, any tangible object other than a document, objects of every kind and nature, as well as prototypes, models, or physical specimens thereof.

20. **Third party/third parties.** The terms “third party” or “third parties” means any person or entity other than Defendants or Plaintiff.

21. **Person(s).** The term “Person(s)” shall mean an individual, corporation, proprietorship, partnership, association, or any other entity.



## INSTRUCTIONS

1. You are required to answer each interrogatory set forth below, regardless of whether the information is possessed by you or your respective predecessors, successors, parents, affiliates, subsidiaries, present and former officers, directors, general partners, limited partners, trustees, managers, employees, representatives, agents, sub-agents, distributors, attorneys, attorneys-in-fact, accountants, investigators, advisors, consultants, or any other person acting or purporting to act, exercising discretion, and/or making decisions on their behalf.

2. The answer to an interrogatory shall not be supplied by referring to the answer to another interrogatory unless the answer to the interrogatory being referred to supplies a complete and accurate answer to the interrogatory being answered.

3. If you withhold any information or decline to fully identify any person, document, or communication, or portion thereof, in response to any of the interrogatories set forth below on grounds of privilege or any other claim of immunity from discovery, then for each identification, document, communication, or portion thereof withheld, state the following: (a) the type of document (*e.g.*, letter, memorandum, contract, etc.); (b) its title; (c) its date; (d) its subject matter; (e) the name, address, and employer at the time of preparation of the individual(s) who authored, drafted, or prepared it; (f) the name, address, and employer at the time of dissemination of the individual(s) to whom it was directed, circulated, or copied, or who had access thereto; and (g) the grounds on which the document is being withheld (*e.g.*, “attorney client privilege,” “work product,” etc.).

4. In the event that you object to any interrogatory on the ground that it is overbroad and/or unduly burdensome for any reason, respond to that interrogatory as narrowed to the least extent necessary, in your judgment, to render it not overbroad/unduly burdensome and state

specifically the extent to which you have narrowed that interrogatory for purposes of your response.

5. In the event that you object to any interrogatory on the ground that it is vague and/or ambiguous, identify the particular words, terms or phrases that are asserted to make such request vague and/or ambiguous and specify the meaning actually attributed to you by such words for purposes of your response thereto.

6. If the answer to any interrogatory is “none,” or if a section is not applicable, so indicate rather than not answering at all.

7. Where an identified document is not in your possession, custody, or control, identify the names of the persons who have possession, custody, or control of such document. If such document was in your possession, custody, or control in the past but is no longer in your possession, custody, or control, state what disposition was made of it, the reasons for such disposition, identify any persons having any knowledge of such disposition, and identify the persons responsible for such disposition.

8. If any of the following interrogatories cannot be answered in full after exercising due diligence to secure the information, please so state and answer to the extent possible, specifying your inability to answer the remainder and stating what information you lack concerning the unanswered portions. If your answer is qualified in any particular way, set forth the details of such qualification.

9. In the event that you object to the scope or time period of an interrogatory and refuse to answer for that scope or time period, state your objections and answer the interrogatory for the scope or time period you believe is appropriate (include in your answer a specific statement as to why you believe the scope or time period is inappropriate).

10. To the extent you answer an interrogatory by reference to documents, identify all such documents by production number.

11. Every interrogatory is a continuing interrogatory and supplemental answers are required promptly pursuant to FRCP 26(e) if you obtain additional responsive information (or information that is in any way inconsistent with your initial response).

## **INTERROGATORIES**

### **Interrogatory No. 1:**

Identify all persons and entities having knowledge of the facts relating to, and underlying, all of your contentions in your complaint and infringement contentions and/or relating to this case, and for each such person or entity, state the subject matter of and the factual basis for that person's knowledge.

### **Interrogatory No. 2:**

Identify any testing, study, analysis, reverse engineering, or other evaluation (collectively referred to as an "evaluation") conducted by or on behalf of Satius concerning all Accused Products, including identifying the time period of the evaluation, the specific products evaluated, the person(s) involved in the evaluation, and all written or oral reports, observations, or conclusions that were the result of the evaluation and every document relating to that evaluation.

### **Interrogatory No. 3:**

Identify and describe in detail the facts and circumstances surrounding any ownership and/or financial interest any entity has or has had in the Asserted Patent and/or Related Patents, including: how and when those interests were acquired; the entire chain of title of any rights in the Asserted Patent and Related Patents; all transfers of such rights and any consideration associated with such transfers; the dates and terms of any written or oral agreements related to each transfer of rights; all documents and materials related to each transfer of rights; and any assignments, licenses, reversionary right, right of first refusal, right to any portion of proceeds resulting from enforcement and/or licensing, right to sue for infringement, obligation to pay maintenance fees, right to prosecute, right to control litigation, right to practice, or right to

license or sub-license the Asserted Patent and/or Related Patents, further identifying all documents, witnesses and things that support Your description.

**Interrogatory No. 4:**

Describe in detail your corporate structure, including: the identity of all officers, managers, directors, and investors, and their respective ownership percentages and voting shares; any relationship or agreements between Satius, Inc. and Satius Holding, Inc.; any relationship to parent companies or owners, subsidiaries, sister entities, partners, affiliates, and related corporations; and your divisions, hierarchal employee structures, and employees.

**Interrogatory No. 5:**

Describe in detail all licenses relating to, or any attempts to license, sell, assign, or otherwise transfer any rights relating to, the Asserted Patent, the Related Patents, any other patent in the field of impedance matching, and/or any other patent relating to the subject matter of the Asserted Patent, including: the amount of the payment received or proposed for each license; the date of the payment or proposed payment; the entity making or proposed to make the payment; whether the payment or proposed payment was based on sales or revenue and, if so, the amount of those sales or revenues; the product or services for which the payment was made or proposed; whether licensed products were marked with the Asserted Patent number, any Related Patents numbers, and/or any other patent numbers; if any royalty rate or rates were used or proposed to determine the payment amount or proposed payment amount, and, if so, what those royalty rates were or were proposed to be.

**Interrogatory No. 6:**

For the Asserted Patent, state the earliest date(s) on which you contend Samsung became aware of, or was placed on notice of, the Asserted Patent and Samsung's alleged infringement of the Asserted Patent and describe all facts concerning these contentions. If you contend that an alleged predecessor-in-interest gave Samsung notice of the Asserted Patent or Samsung's alleged infringement of the Asserted Patent, identify all facts concerning such contention and the persons knowledgeable about your response.

**Interrogatory No. 7:**

Explain in detail all damages that Satius has allegedly incurred from the alleged infringement, including the total dollar amount of damages, the method of computation, the basis for these alleged damages (*e.g.*, total number of accused Samsung products made, used, offered for sale, or sold in the United State or imported into the United States, reasonable royalty, royalty rate, royalty base, and the smallest saleable patent practicing unit), the incremental value that You contend the patented invention adds to each of the Accused Products, and the full factual and legal bases supporting Your damages claims.

**Interrogatory No. 8:**

To the extent that you claim entitlement to damages for any activities occurring outside of the United States, state your full factual and legal contentions as to which activities occurring outside of the United States you accuse of infringement and why you contend such activities constitute infringement, and, for each such activity individually, the amount of damages you contend you should be awarded for such activity, the method of computation for the foregoing, the basis for these alleged damages (*e.g.*, total number of accused Samsung products made, used, offered for sale, or sold in which countries or imported into which countries, reasonable royalty,

royalty rate, royalty base, and the smallest saleable patent practicing unit), the incremental value that You contend the patented invention adds to each of the Accused Products, and all facts and legal contentions supporting your claim for the foregoing.

**Interrogatory No. 9:**

Describe in detail all facts and circumstances supporting your contention that you are entitled to injunctive relief against Samsung in this action, including the facts and circumstances supporting any contention that you will suffer irreparable harm unless the Court enjoins Samsung from the allegedly infringing activities.

**Interrogatory No. 10:**

Describe in detail all facts related to any valuation of this lawsuit, or any assessment of the potential or likely monetary or other damages that could be recovered by you as a result of this lawsuit.

**Interrogatory No. 11:**

Identify and describe in detail all communications with any person or party discussing or relating to the Asserted Patent, the Related Patents, Samsung, the Accused Products, this litigation, and/or any allegations that the Asserted Patent and/or Related Patents are practiced by any entities.

**Interrogatory No. 12:**

State the earliest priority date that you contend each Asserted Claim of the Asserted Patent is entitled to and the factual and legal basis for that contention, including the circumstances of how and when the claimed subject matter was conceived and diligently reduced to practice, and identify all witnesses, facts, and documents supporting Your contentions.

**Interrogatory No. 13:**

For each Asserted Claim that you contend is valid, describe in detail the complete legal and factual bases for your contention, including your complete factual and legal responses to the invalidity contentions served by Samsung and a chart that overcomes each prior art reference Samsung asserts as invalidating each asserted claim, on a limitation by limitation basis.

**Interrogatory No. 14:**

For each Asserted Claim, identify and describe in detail every objective indicia of non-obviousness that you contend supports the patentability of each Asserted Claim, including all of your factual and legal bases for such contentions and identification of persons knowledgeable about such contentions.



Dated: May 31, 2019

By: /s/ Brian Bieluch

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*Counsel for Defendants  
Samsung Electronics Co., Ltd. and  
Samsung Electronics America, Inc.*

**CERTIFICATE OF SERVICE**

I, Patrick Flynn, hereby certify that on May 31, 2019, I caused a true and correct copy of the foregoing document to be served by e-mail upon all counsel of record.

/s/ Patrick Flynn

*Counsel for Defendants  
Samsung Electronics Co., Ltd. and  
Samsung Electronics America, Inc.*

# EXHIBIT C

**SUBJECT TO PROTECTIVE ORDER – CONTAINS HIGHLY CONFIDENTIAL -  
OUTSIDE COUNSEL’S EYES ONLY INFORMATION**

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE**

SATIUS HOLDING, INC.,

Plaintiff,

v.

SAMSUNG ELECTRONICS CO., LTD,  
and SAMSUNG ELECTRONICS  
AMERICA, INC.,

Defendants.

Case No. 1:18-cv-00850-MN-CJB

**JURY TRIAL DEMANDED**

**SAMSUNG DEFENDANTS’ OBJECTIONS AND RESPONSES TO PLAINTIFF SATIUS  
HOLDING, INC.’S FIRST SET OF INTERROGATORIES (NOS. 1-9)**

Pursuant to Rules 26 and 33 of the Federal Rules of Civil Procedure, Defendants Samsung Electronics Co., Ltd. (“SEC”) and Samsung Electronics America, Inc. (“SEA”) (collectively “Samsung”) hereby submit their objections and responses to the First Set of Interrogatories by Satius Holding, Inc. (“Satius”) served on June 3, 2019.<sup>1</sup>

**GENERAL RESPONSES**

The following general responses are made with respect to each Interrogatory:

1. Samsung incorporates by reference each General Objection below into each Specific Response. A Specific Response may restate a General Objection for emphasis or another reason. Failure to include a General Objection in a Specific Response is not intended to waive the General Objection.

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<sup>1</sup> Samsung’s objections and responses are being served on July 17, 2019, consistent with the Court’s July 1, 2019 Order regarding the Hearing on Claim Construction and Discovery. *See* DI 41.

**SUBJECT TO PROTECTIVE ORDER – CONTAINS HIGHLY CONFIDENTIAL -  
OUTSIDE COUNSEL’S EYES ONLY INFORMATION**

REDACTED



**INTERROGATORY NO. 5:**

Describe in detail, for each of the Asserted Claims, the factual and legal basis for Defendants’ allegation that Defendants do not infringe the Asserted Patent, either directly or indirectly, by providing a claim chart setting forth all basis for non-infringement on a limitation-by-limitation basis.

**SUBJECT TO PROTECTIVE ORDER – CONTAINS HIGHLY CONFIDENTIAL -  
OUTSIDE COUNSEL’S EYES ONLY INFORMATION**

**RESPONSE TO INTERROGATORY NO. 5:**

Samsung incorporates by reference its General Objections. In addition, Samsung objects to this interrogatory as being vague and ambiguous, overly broad, and unduly burdensome in asking Samsung to “[d]escribe in detail” “all basis for non-infringement.” Samsung further objects to this Interrogatory calling for information for Samsung’s basis for no indirect infringement in light of Satius’s Complaint and Disclosure of Initial Claim Charts, which do not allege indirect infringement of the Asserted Patent. Samsung further objects to this Interrogatory to the extent that it calls for Privileged Information, premature disclosure of expert opinions, and premature expert discovery. Samsung will not provide or produce Privileged Information in response to this Interrogatory and will comply with the Court’s schedule regarding the disclosure of expert reports and expert discovery. Samsung further objects to this Interrogatory to the extent its calls for information that (a) is not within Samsung’s possession, custody, or control or (b) is subject to confidentiality rights of third parties that Samsung may not disclose without the consent of such third parties; Samsung shall provide notice to such third parties and will work with Satius to address any third-party confidentiality obligations. Samsung objects to this Interrogatory as premature because the Court has not yet issued its *Markman* decision and because Satius bears the burden of proving infringement and thus far Satius has not carried its burden. Specifically, Satius has not produced evidence that would allow a reasonable factfinder to conclude that Samsung has infringed any valid and enforceable asserted claim of the Asserted Patent. Moreover, as detailed in Samsung’s March 11, 18, 20, and 23, 2019 correspondence to Satius’s counsel, Satius’s infringement contentions are wholly deficient, incomplete, and insufficiently detailed or specific, making it impossible for Samsung to fully respond to Satius’s infringement allegations at this time. Satius’s infringement contentions are deficient at least

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because they (i) do not cite sufficient documents or other valid and relevant evidence, (ii) do not identify accused structures, acts, or materials in the Accused Products with particularity, and (iii) do not identify Satius’s doctrine of equivalents allegations with the specificity required by the Discovery Order, the Court’s individual rules of practice, the District of Delaware’s Local Rules, and the Federal Rules of Civil Procedure. Moreover, Satius’s infringement contentions do not chart any single Accused Product, let alone every Accused Product, and have not established that any of the products that are mentioned in Satius’s contentions are representative of any other product. To rely on representative products, a “party must specify which modules are representative of a particular series or group, [and explain] why they are representative and how their particular properties or components directly infringe each and every element of a claim.” *See Commissariat a L’Energie Atomique v. Samsung Elecs. Co.*, 524 F. Supp. 2d 534, 541 (D. Del. 2007). Satius has not done this. Satius has not specified which models are representative for any product groups or explained why any product is representative of another, and instead of providing a theory, with supporting evidence, for how any Accused Product directly infringes every claim element, Satius’s contentions mix-and-match documents from various products without presenting a single theory of infringement for even a single product that can be tracked through every limitation of an asserted claim.

Samsung further objects to this Interrogatory on the grounds that it is compound with discrete subparts such that each count as a separate Interrogatory under Rule 33 of the Federal Rules of Civil Procedure.

Subject to and without waiving these objections, Samsung responds as follows:

For the reasons explained in Appendices A and B to this response, which are hereby incorporated by reference, the Accused Products do not practice the Asserted Claims, either

**SUBJECT TO PROTECTIVE ORDER – CONTAINS HIGHLY CONFIDENTIAL -  
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literally or under the doctrine of equivalents. Samsung further refers Satius to and incorporates Samsung’s answer and counterclaims to Satius’s Complaint, and any supplementation or amendment thereto, which are herein incorporated by reference. Additionally, Samsung will produce expert reports addressing Samsung’s non-infringement contentions in accordance with the schedule set by the Court. Samsung also notes that it is impossible to infringe an invalid patent claim, and therefore an additional reason that Samsung does not infringe the asserted claim is that the asserted claims are all invalid, as explained in Samsung’s Invalidity Contentions, which are hereby incorporated by reference.

Samsung’s investigation into the subject matter of this Interrogatory is continuing, discovery has not yet closed, and Samsung expects to supplement its discovery responses as appropriate.

**INTERROGATORY NO. 6:**

**REDACTED**





Dated: July 17, 2019

By: /s/ Brian Bieluch

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*Counsel for Defendants  
Samsung Electronics Co., Ltd. and  
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**CERTIFICATE OF SERVICE**

I, Brian Bieluch, hereby certify that on July 17, 2019, I caused a true and correct copy of the foregoing document to be served by e-mail upon all counsel of record.

/s/Brian Bieluch

*Counsel for Defendants  
Samsung Electronics Co., Ltd. and  
Samsung Electronics America, Inc.*

# EXHIBIT D

REDACTED IN ITS ENTIRETY

# EXHIBIT E

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE**

SATIUS HOLDING, INC.,

*Plaintiff,*

v.

SAMSUNG ELECTRONICS CO., LTD.,  
and SAMSUNG ELECTRONICS  
AMERICA, INC.,

*Defendants.*

C.A. No. 18-850-MN-CJB

**JURY TRIAL DEMANDED**

**SAMSUNG’S INITIAL INVALIDITY CONTENTIONS**

Under Paragraph 7 of the Court’s Scheduling Order (Dkt. 20), Defendants Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. (collectively, “Samsung” or “Defendants”) provide their initial invalidity contentions for U.S. Patent No. 6,711,385 (“the ’385 Patent” or “Asserted Patent”) for the claims currently asserted by Plaintiff Satius Holding, Inc. (“Satius” or “Plaintiff”).

**I. INTRODUCTORY STATEMENT**

Claims 1, 11, and 18 of the Asserted Patent (“the Asserted Claims”) are neither novel nor non-obvious under 35 U.S.C. §§ 102-103 (pre-AIA) in view of the state of the prior art and the understanding of those of ordinary skill in the art at the time of the alleged invention.

The Asserted Claims are also invalid because they fail to claim patent-eligible subject matter under 35 U.S.C. § 101, as interpreted by *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 216-17 (2014) and its progeny. The Asserted Claims of the Asserted Patent are also invalid under 35 U.S.C. § 101 for lack of utility. The Asserted Claims of the Asserted Patent are also invalid for lack of written description, lack of enablement, and/or indefiniteness under 35 U.S.C. § 112

(pre-AIA), as explained herein. The Asserted Patent is also invalid for obviousness-type double patenting.

## **II. INVALIDITY CONTENTIONS**

These initial invalidity contentions are based on Samsung's current understanding of the Asserted Claims based upon Plaintiff's infringement contentions, which are vague and deficient for the reasons Samsung has identified to Plaintiff, and without the benefit of claim construction and only limited discovery. Accordingly, these initial invalidity contentions may reflect various potential and alternative positions regarding claim construction and scope. If these contentions reflect or suggest a particular interpretation or reading of any claim limitation, Samsung does not adopt that interpretation or reading. Nor do these initial invalidity contentions constitute an admission by Samsung that any Asserted Claim covers any accused product, including any current or past versions. Samsung does not take any position herein about the proper scope or construction of the Asserted Claims.

An assertion that a particular limitation is disclosed by a prior art reference or references may be based in part on Plaintiff's apparent interpretation, as identified in Plaintiff's infringement contentions and/or complaints in this action, and is not intended to be, and is not, an admission by Samsung that an apparent construction is supportable or correct. If these contentions reflect constructions of claim limitations consistent with or implicit in Plaintiff's infringement contentions, no inference is intended, nor should any be drawn, that Samsung agrees with or concedes to those claim constructions and Samsung reserves its right to contest them.

If prior art cited for a particular limitation discloses functionality that is the same or similar in some respects to the alleged functionality in the accused products identified in Plaintiff's infringement contentions, Samsung does not concede that those limitations are in fact

met by those accused functionalities.

In accordance with the Court's Scheduling Order and applicable rules, Samsung further reserves the right to seek to supplement and amend these disclosures and associated document production based on further investigation, analysis, and discovery, Samsung's consultation with experts and others, and contentions or court rulings on relevant issues such as claim construction and priority dates. For example, discovery is in the early stages and deposing the alleged inventor may reveal information that affects the disclosures and contentions herein. Samsung further reserves the right to rely on *Inter Partes* Review ("IPR") petitions filed or instituted against the Asserted Patent, including Satius's submissions and arguments in those IPRs. Also, Samsung has not completed discovery from third parties who have information concerning the prior art cited herein and possible additional art. Samsung also reserves the right to seek leave (if necessary) to amend these invalidity contentions or to modify its selection of prior art references in the event that Plaintiff serves supplemental or modified infringement contentions. In particular, if Satius is permitted to amend its infringement contentions for any reason, Samsung reserves its right to amend its corresponding invalidity contentions. By reserving this right, Samsung does not concede that any amended infringement contentions that Satius may serve are proper amendments; Samsung reserves its right to challenge as untimely or improper, in whole or in part, Satius's amendments, if made.

Because Samsung is continuing its search for and analysis of relevant prior art, Samsung reserves the right to seek to amend or supplement the information provided herein, including identifying, charting, or relying upon additional prior art references, relevant disclosures, and bases for invalidity contentions. Additional prior art, disclosures, and invalidity defects, whether or not cited in this disclosure and whether known or not known to Samsung, may become

relevant as investigation, analysis, and discovery continue. Currently, Samsung does not know whether, and the extent to which, Satius may contend that limitations of the Asserted Claims are not disclosed in the prior art identified by Samsung. If Satius does so contend, Samsung reserves the right to identify and rely upon other references or portions of references regarding the allegedly missing limitation(s). Samsung incorporates by reference, and intends to rely on, each reference, disclosure, or argument set forth in invalidity contentions (including appendices) served in any prior or concurrent matter involving the same patent or related patents but not yet produced to Samsung by Satius. Samsung also reserves the right to supplement its contentions based on materials that could not be obtained before service of these contentions due to confidentiality restrictions. By serving these invalidity contention, Samsung does not waive its right to challenge the sufficiency of Satius's infringement contentions. Instead, as Samsung has explained to Satius, Satius's infringement contentions are deficient and do not give Samsung adequate notice of Satius's theory of infringement. Satius's infringement contentions to date do not set out a prima facie case of infringement, as a matter of law. In seeking to chart claims, the charts jump between different products, repeat the claim language as purported infringement evidence in key areas where Satius should be explaining its infringement theory, and skip over showing any evidence that various sub-limitations of claims are met.

Additionally, because discovery has only recently commenced, Samsung reserves the right to present additional prior art references or disclosures under 35 U.S.C. §§ 102(a), (b), (e), (f), or (g), or § 103, located during the course of discovery or further investigation, and to assert invalidity under 35 U.S.C. §§ 102(c), (d), or (f), if future discovery or investigation yields information that supports additional bases of invalidity.



**A. Identity of Each Item of Prior Art**

Subject to Samsung's reservation of rights, Samsung identifies each item of prior art that anticipates or renders obvious one or more of the Asserted Claims in the attached Prior-Art Index submitted herewith. *See Section V* below. If the references listed in **Section V** are not identified as items of prior art that anticipate or render obvious an Asserted Claim, Samsung may rely on these references as background and as evidence of the state of the art at the time of Plaintiff's alleged invention.

Additionally, the prior art references cited by Samsung include references that are related patent applications and issued patents that contain substantially the same subject matter (e.g., published U.S. patent applications, and issued U.S. patents, foreign applications or issued patents). Any citation to or quotation from any of these patent applications or patents, therefore, encompasses any parallel citation to the same subject matter in other related or corresponding applications or patents. For example, where a claim chart cites a published patent application that ultimately issued as a patent with substantially the same written description, Samsung may rely upon the published patent application or the issued patent as prior art.

Samsung also reserves the right to later rely upon all references or portions of references provided in **Section V** to supplement or amend these disclosures. Samsung incorporates by reference (1) any and all prior art contained or identified in documents produced thus far by Plaintiff in this or any other proceeding, (2) any and all additional materials regarding or bearing upon invalidity in Plaintiff's possession or control that have not been produced to date, if any exist, and (3) any and all prior art cited by or invalidity contentions served by defendants in any prior case or concurrent case involving the Asserted Patent or any related patent(s).

Each disclosed item of prior art describing a product, system, or other implementation

made in the United States is evidence of a prior invention by another under 35 U.S.C. § 102(g), as evidenced by the named inventors, authors, organizations, and publishers involved with each of these references. Samsung further intends to rely on admissions of the named inventor concerning the prior art, including statements found in the Asserted Patent, its prosecution history, related patents or patent applications and their prosecution histories, any deposition testimony, and the papers filed and any evidence submitted by Plaintiff in conjunction with this litigation.

Finally, Samsung notes that disclosures of admitted prior art in the Asserted Patent either anticipate the claimed inventions or render the claimed inventions obvious, either alone or in combination with the knowledge of one or ordinary skill and the prior art references disclosed in these invalidity contentions. Samsung may also rely upon statements in the Asserted Patent as admitted prior art.

**B. Whether Prior Art Anticipates or Renders Obvious**

Subject to Samsung's reservation of rights, Samsung identifies in the attached Exhibits A01 to A29 (collectively the "Prior Art Invalidity Charts") prior art references that anticipate the Asserted Claims under at least one or more of 35 U.S.C. §§ 102(a), (b), (e), and (g) (pre-AIA), either expressly or inherently, and/or render obvious the Asserted Claims under 35 U.S.C. § 103 (pre-AIA) either alone or in combination with other references identified herein or render the Asserted Claims invalid under the judicially created doctrine of obviousness-type double patenting. Each Asserted Claim is anticipated by, or obvious in view of, one or more items of prior art identified in these disclosures or claims, alone or in combination. A table identifying exemplary ways in which the prior art references cited herein anticipate or render obvious the Asserted Claims is provided below in Section 0 below.

Much of the art identified in the attached exhibits and charts reflect common knowledge and the state of the relevant art at the time of the earliest filing date of the Asserted Patent. Samsung may rely on additional citations, references, expert testimony, and other material to provide context or to aid in understanding the cited portions of the references or cited features of the prior art systems. Samsung may also rely on expert testimony explaining relevant portions of references, relevant hardware or software products or systems, and other discovery regarding these subject matters. Additionally, Samsung may rely on other portions of any prior art reference for purposes of explaining the background and general technical subject area of the reference or system.

Where an individual reference is cited with respect to all limitations of an Asserted Claim, Samsung contends that the reference anticipates the claim under one or more of 35 U.S.C. §§ 102(a), (b), (e), or (g) (pre-AIA) and also renders obvious the claim under 35 U.S.C. § 103 (pre-AIA), both by itself in view of the knowledge of a person of ordinary skill in the relevant art and in combination with the other cited references to the extent the reference is not found to disclose one or more claim limitations. A single prior art reference, for example, can establish obviousness where the differences between the disclosures within the reference and the claimed invention would have been obvious to one of ordinary skilled in the art. For example, “[c]ombining two embodiments disclosed adjacent to each other in a prior art patent does not require a leap of inventiveness.” *Boston Scientific Scimed, Inc. v. Cordis Corp.*, 554 F.3d 982, 991 (Fed. Cir. 2009). If Plaintiff contends that an embodiment within a particular item of prior art does not fully disclose all limitations of a claim, Samsung reserves its right to rely on other embodiments in that prior art reference, or other information, to show single-reference obviousness under 35 U.S.C. § 103(a) (pre-AIA).

Where an individual reference is cited with respect to fewer than all limitations of an Asserted Claim, Samsung contends that the reference renders obvious the claim under 35 U.S.C. § 103(a) (pre-AIA) by itself in view of the knowledge of a person of ordinary skill in the relevant art or in view of admitted prior art in the Asserted Patent and further in view of each other reference and combination of references that discloses the remaining claim limitation(s), as indicated in the claim charts submitted with these contentions. “Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007) (quoting *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1, 17 (1966)). Exemplary motivations to combine references are discussed below. Samsung reserves the right to rely upon any references or assertions identified herein in connection with Samsung’s contention that each Asserted Claim is invalid under 35 U.S.C. § 103 (pre-AIA) and to rely upon expert testimony addressing these references and assertions. The fact that prior art is identified to anticipate the Asserted Claims does not prevent Samsung from also relying on that reference as a basis for invalidity based on obviousness. *In re Meyer*, 599 F.2d 1026, 1031 (C.C.P.A. 1979) (holding that “a rejection for obviousness under § 103 can be based on a reference which happens to anticipate the claimed subject matter”). If any cited prior art item does not fully disclose a limitation of an Asserted Claim or is alleged by Plaintiff to not disclose a limitation, the limitation is present and identified in another prior art item, or is admitted prior art by the Asserted Patent, as shown in the attached claim charts.

Many of the cited references cite or relate to additional references or products, services,

or projects. Many of the cited references also cite software, hardware, or systems. Samsung may rely upon these cited additional references and copies or exemplars of the cited software, hardware, or systems. Samsung will produce or make available for inspection any of these cited references, software, hardware, or systems that it intends to rely upon. Samsung may also rely upon the disclosures of the references cited or discussed during the prosecution of the Asserted Patent or the assertions presented by the inventor about those references.

Samsung reserves the right to further streamline and reduce the number of anticipation or obviousness references relied upon with respect to a given Asserted Claim and to exchange or otherwise modify the specific references relied upon for anticipation and within each obviousness combination for each Asserted Claim. Discovery is at an early stage and Satius has not provided any contentions or documentation with respect to any alleged pre-filing invention dates or with respect to claim limitations that are allegedly lacking or not obvious in the prior art. Each limitation of the Asserted Claims was well-known to those of ordinary skill in the art before the relevant priority date for each Asserted Claim, as detailed below. Satius has provided no evidence showing that the Asserted Patent is entitled to an invention date earlier than **July 6, 2000**.

Accordingly, Samsung's analysis and selection of prior art is based on the above priority date and Satius has not shown that the Asserted Patent is entitled to a priority date other than its U.S. filing date. Should Satius later assert a different invention or priority date, Samsung reserves the right to investigate and supplement its invalidity contentions.

In addition, the Asserted Patent is invalid under the judicially created doctrine of obviousness-type double patenting, which "is designed to prevent a patent owner from extending his exclusive rights to an invention through claims in a later-filed patent that are not patentably

distinct from claims in the earlier filed patent.” *Proctor & Gamble Co. v. Teva Pharms. USA, Inc.*, 566 F.3d 989, 999 (Fed. Cir. 2009). “A later patent claim is not patentably distinct from an earlier patent claim if the later claim is obvious over, or anticipated by, the earlier claim.” *Eli Lilly & Co. v. Barr Labs., Inc.*, 251 F.3d 955, 968 (Fed. Cir. 2001). “[I]n answering the question, ‘Does any claim in the application define merely an obvious variation of an invention disclosed and claimed in the [prior] patent?’ the court may look to the various embodiments described in the specification as they provide a tangible and more meaningful method to discern whether what is claimed was merely modified in an obvious manner.” *In re Hitachi Metals, Ltd.*, 603 F. App’x 976, 979 (Fed. Cir. 2015). Where one claim of an earlier-filed, later-expiring patent is invalid for obviousness-type double patenting over an already expired patent, “[t]he patentee cannot undo this unjustified timewise extension by retroactively disclaiming the term of the later patent because it has already enjoyed rights that it seeks to disclaim. Permitting such a retroactive terminal disclaimer would be inconsistent with the fundamental reason for obviousness-type double patenting, namely, to prevent unjustified timewise extension of the right to exclude.” *See Boehringer Ingelheim Int’l GmbH v. Barr Labs., Inc.*, 592 F.3d 1340, 1348 (Fed. Cir. 2010) (citation and internal quotation marks omitted); *see also* MPEP § 1490 (“[T]he phrase “terminal disclaimer” is used to denote a disclaimer of the entire term or any terminal part of the term of a patent or a patent to be granted.... A disclaimer of a terminal portion of the term of an individual claim, or individual claims will not be accepted.”).

### **1. Obviousness and Motivations to Combine**

For the Asserted Patent, each cited prior art reference may be combined with one or more other prior art references to render obvious the Asserted Claims of the Asserted Patent in combination, as explained in more detail below. The disclosures of these references may also be combined with information known to persons skilled in the art at the time of the alleged

inventions, and understood and supplemented in view of the common sense of persons skilled in the art at the time of the alleged inventions, including any statements in the intrinsic record of the Asserted Patent and related applications and patents.

A person of ordinary skill would have been motivated to combine the prior art cited in the Appendices based on the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art. The identified prior art references, including portions cited in the Prior Art Invalidity Charts, address the same or similar technical issues, and suggest the same or similar solutions to those issues as the Asserted Claims. On such bases, on a limitation-by-limitation basis, Samsung expressly intends to combine one or more prior art items identified in the Appendices with each other to address any further contention from Plaintiff that a particular prior art item supposedly lacks one or more limitations of an Asserted Claim. In other words, Samsung contends that each charted prior art item can be combined with other charted prior art items when a particular prior art item lacks or does not explicitly disclose a limitation or feature of an Asserted Claim. The suggested obviousness combinations described below are not to be construed to suggest that any reference included in the combinations is not anticipatory. Further, if Plaintiff contends that any of the anticipatory prior art fails to disclose one or more limitations of the Asserted Claims, Samsung reserves the right to identify other prior art references that, when combined with the anticipatory prior art, would render the claims obvious despite an allegedly missing limitation. Samsung will further specify additional motivations to combine the prior art, including through reliance on expert testimony, at the appropriate later stage of this lawsuit.

A person of skill in the art would have been motivated to combine the identified prior art items. As the Supreme Court recognized in *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 416

(2007), “[t]he combination of familiar limitations according to known methods is likely to be obvious when it does no more than yield predictable results.” Furthermore, “[w]hen a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.” *Id.* at 417.

The Supreme Court further noted that “in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle.” *Id.* at 420. A combination of limitations is “obvious to try” “[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense.” *Id.* at 421. “In that instance the fact that a combination was obvious to try might show that it was obvious under § 103.” *Id.* Finally, the Supreme Court recognized that “[g]ranting patent protection to advances that would occur in the ordinary course without real innovation retards progress and may, in the case of patents combining previously known elements, deprive prior inventions of their value or utility.” *Id.* at 419. All of the following rationales recognized in *KSR* support a finding of obviousness with respect to each of the obviousness combinations disclosed herein:

- (1) Combining prior art limitations according to known methods to yield predictable results;
- (2) Simple substitution of one known element for another to obtain predictable



results;

- (3) Use of a known technique to improve similar devices (methods, or products) in the same way;
- (4) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;
- (5) “Obvious to try”—choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;
- (6) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations would have been predictable to one of ordinary skill in the art; or
- (7) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

Certain of these rationales are discussed more specifically below. The fact that others are not discussed more specifically is not an admission or concession that they do not apply. To the contrary, the discussion below simply provides explanation regarding certain of the specific rationales. As Plaintiff’s positions regarding claim construction, specific prior art, specific combinations and/or the state of the art at the time of invention become clear, additional explanation regarding obviousness and/or motivation to combine specific references and knowledge may become relevant and appropriate. Accordingly, Samsung reserves the right to further identify and explain motivations to combine as the need arises based on positions taken by Plaintiff and/or rulings issued by the Court.

Samsung further contends that the prior art identified in these Invalidity Contentions is evidence of simultaneous or near-simultaneous independent invention by others of the alleged invention as recited in one or more of the Asserted Claims. Samsung reserves its right to rely on the simultaneous or near-simultaneous independent invention by others as further evidence of the obviousness of the Asserted Claims.

Each limitation of the Asserted Claims of the Asserted Patent was well known to those of ordinary skill in the art before the priority date of the Asserted Patent, as detailed below.

The limitations recited in the Asserted Claims are mere combinations and modifications of these well-known features and limitations. A person of ordinary skill in the art would be able, and motivated, to improve the existing technology in the same or similar manner by combining or modifying the individual limitations that were already known in the art to yield predictable results.

Subject to the foregoing, Samsung identifies the following exemplary reasons that skilled artisans would have combined teachings of the prior art to render obvious the Asserted Claims. The fact that others are not discussed more specifically should not be interpreted as an admission or concession that it does not apply. To the contrary, the discussion below simply provides more explanation of these specific rationales.

**a. Motivations Identified During Prosecution**

Samsung hereby expressly incorporates by reference any statements and reasons set forth by the Examiner during prosecution of the Asserted Patent and related or similar patent applications (including but not limited to EP 1307972B1) as to why it would have been obvious to modify or combine references to achieve the Asserted Claims.

**b. Combinations of Related References**

In some instances, multiple prior art publications and/or physical references discuss or address the same or substantially similar underlying system, software, or other project, such as commercial products and successive versions thereof, or multiple publications discussing the same subject matter. Where multiple references discuss or relate to the same or related underlying projects, systems, or other subject matter (e.g., references that describe impedance matching in wireless communication), it would have been obvious to combine the discussions

and disclosures of the references as they would be understood to describe features or potential features of the underlying project, system, or subject matter. Similarly, where one reference cites or discusses other references or their teachings, or references have one or more authors in common and a related area of subject matter, it would have been obvious to consider the teachings of the references in combination with each other due to the express relationships and commonalities between the references.

**c. Groups of References**

In addition to combinations of references and motivations to combine references identified elsewhere herein, including within claim charts, Samsung identifies combinations and motivations to combine based on references grouped by subject matter, for example, in the manner approved by courts applying patent local rules regarding invalidity contentions. *See, e.g., Iridescent Networks, Inc. v. AT&T Mobility, LLC*, 6:16-CV-01003-RWS, Order at 3 (E.D. Tex. Jun. 15, 2017) (Dkt. 145) (documents pertaining to SAE for LTE development from the 3GPP working group can be compiled to show a single solution); *Avago Techs. Gen IP PTE Ltd. v. Elan Micro. Corp.*, No. C04-05385 JW (HRL), 2007 U.S. Dist. LEXIS 97464, at \*10-11 (N.D. Cal. Mar. 28, 2007) (organizing prior art references into “groups” and identifying combinations as a set of references “and/or” another set of references); *Keithley v. Homestore.com, Inc.*, 553 F. Supp. 2d 1148, 1150 (N.D. Cal. 2008) (“Apple’s grouping method is permissible under the Local Rules”).

Furthermore, the particular cited disclosures for each reference addressed in the numbered subsections within this section constitute additional charts identifying where specifically in each item of prior art each applicable limitation of each Asserted Claim is found. The cited disclosures identified in this section are provided in addition to the citations set forth in the claim charts submitted separately herewith.

**(1) Groups of Prior Art References for the '385 Patent**

**(a) Transmitter limitation (Claim 1)**

Asserted claim 1 of the '385 Patent recites a limitation regarding use of a transmitter:

- “a transmitter having an output impedance, said transmitter for transmitting the electric or electromagnetic signals at a preselected frequency” (claim 1)

Notwithstanding Samsung's contentions under 35 U.S.C. §§ 101, 112 (pre-AIA), nothing about this claim limitation adds anything novel or non-obvious over the prior art, at least under the scope of the claims required by Satius's infringement contentions. A transmitter with an output impedance that transmits, at least, electromagnetic signals at a preselected frequency was well-known in the art before the alleged invention of the '385 Patent and is described at length in the disclosures of numerous references submitted and charted here. It was a well-understood, routine, and conventional technique, at least, in the field in the field of radio frequency (“RF”) communications. Wireless communications systems, for example, are invariably designed to communicate at preselected frequencies in preselected bandwidths known to the transmitter and intended receiver to ensure the signals are properly received (e.g., the frequency band of a cellular phone system). *See, e.g.*, U.S. Patent No. 5,940,040, 1:10-15 (noting that the PDC (personal digital cellular) system “ha[s] frequency bands of 800 MHz and 1.5 GHz”); U.S. Patent No. 6,147,651, 2:32-46 (noting the “diversification of the mobile communication system” and frequency bands (“e.g., 800 MHz band, 1.5 GHz band, and 1.9 GHz band”)); U.S. Patent No. 6,611,691, 1:10-20 (disclosing that the “GSM system [is] in a 900 MHz frequency band,” “DCS system [is] at an 1800 MHz frequency band,” “PCS system [is] in a 1900 frequency band,” and the “AMPS system [is] in an 800 MHz frequency band”). A person of ordinary skill also understood that all transmitters have an output impedance. *See, e.g.*, U.S. Patent No. 4,201,960, 1:10-20 (“The prior art has developed numerous methods for the tuning of a radio frequency

antenna to the output impedance of the transmitter, as this will assure maximum transmitted power.”). As one prior art reference notes, “[u]sually, the transmitter ... has an impedance equal to that of the transmission line  $Z_0$ ,” but “the antenna impedance  $Z_A$  is quite different from  $Z_0$ .” W.L. Stutman & G.A. Thiele, *ANTENNA THEORY & DESIGN* 180 (Wiley 2d ed. 1998); *see also* Satius’s Complaint at 13 (“The Samsung Shannon 965, like all radio frequency devices, operates specific output impedance.”).

The claimed functionality is disclosed in the prior art cited herein, including the disclosures cited in the claim charts in **Appendices A01 to A29**. If a prior art reference in **Appendices A01 to A29** is argued or found not to disclose the transmitter limitation, it would have been obvious to modify or combine with that reference for at least the following reasons in addition to the motivations to combine identified separately in these contentions:

- (1) Combining the prior art limitations according to known transmitting methods would have yielded predictable results.
- (2) Simple substitution of one known element for another would have yielded predictable results (e.g., using impedance matching circuitry designed for use with a receiver receiving at a preselected frequency with a transmitter transmitting a preselected frequency). *See, e.g.*, U.S. Patent No. 4,965,607, 3:65-68 (“The present invention can also be used to tune an antenna in the receive mode. On a previously leaved antenna, the transmitter can send a receive frequency command to the antenna coupler.”).
- (3) Use of a known technique to improve similar devices in the same way would have been obvious (e.g., connecting a wireless RF transmitter transmitting at a preselected frequency to a coupler designed for use in RF communications).
- (4) Applying a known technique (e.g., transmitting electromagnetic signals at a preselected frequency) to a known device ready for improvement (e.g., a coupler for RF communications) would have yielded predictable results.
- (5) Obvious to try transmitters of a preselected frequency from among a finite number of identifiable, predictable, design choices for a transmitter, with a reasonable expectation of success.
- (6) References disclosing these concepts teach the beneficial utility of them, including as cited in the claim charts submitted herewith.

Samsung may rely upon the cited disclosures, among others, to show and illustrate the motivations to combine. Specific evidence of the motivation to combine includes the references and passages therein cited in the claim charts submitted herewith for the applicable claim limitations, which reflect the reasons and motivations to combine and modify listed above and additional reasons and motivations to combine and modify that Samsung may rely upon. Samsung also expect to rely on expert testimony regarding motivation to combine.

For example, the references or products in the left column below each disclose “a transmitter having an output impedance, said transmitter for transmitting the electric or electromagnetic signals at a preselected frequency,” at least under the scope of the claims implied by Satius’s infringement contentions. For at least the motivations discussed above, any one of the references or products can be combined with any of the references or products in the right column below.

<b>References disclosing the transmitter limitation (at least under the scope of the claims required by Satius’s infringement contentions)</b>	<b>References that a person of skill would be motivated to use with a wireless transmitter</b>
US 5,778,308 (Sroka)	US 6,026,286 (Long)
US 6,188,364 (Scordilis)	US 5,818,127 (Abraham 127)
US 2,687,513 (Lindenblad)	US 6,396,362 (Mourant)
US 6,396,363 (Alexanian)	US 5,559,377 (Abraham 377)
US 6,219,532 (Tanaka)	US 5,420,558 (Ito)
US 6,486,765 (Katayangi)	US 5,969,590 (Gutierrez)
US 6,100,773 (Nakamichi)	US 5,281,932 (Even-Or)
US 5,589,844 (Belcher)	WO 1998040980 (Abraham 980)
US 5,565,881 (Phillips)	US 4,785,345 (Rawls)
US 6,121,940 (Skahill)	US 5,877,667 (Wollesen)
US 5,874,926 (Tsuru)	US 6,104,707 (Abraham 707)
US 6,414,562 (Bouisse)	US 6,346,913 (Chang)
US 5,467,098 (Bonebright)	
US 6,177,872 (Kodukula)	
US 4,201,960 (Skutta)	
US 5,400,041 (Strickland)	
US 4,965,607 (Wilkins)	
W.L. Stutman & G.A. Thiele, ANTENNA THEORY & DESIGN (Wiley 2d ed. 1998)	

Prior Art Samsung Devices ( <i>see</i> §V.C)	
Prior Art Nokia Devices ( <i>see</i> §V.C; Appendix A29)	
Prior Art Ericsson Devices ( <i>see</i> §V.C)	
Prior Art Motorola Devices ( <i>see</i> §V.C; Appendix A28)	
Prior Art Qualcomm Devices ( <i>see</i> §V.C)	

**(b) Coupler limitation (Claim 1)**

Asserted claim 1 of the '385 Patent recites limitations regarding use of a coupler with a non-magnetic core:

- “a coupler connected to the transmitter, said coupler comprising a transformer having a non-magnetic core” (claim 1)

Notwithstanding Samsung’s contentions under 35 U.S.C. §§ 101, 112 (pre-AIA), nothing about this claim limitation adds anything novel or non-obvious over the prior art, at least under the scope of the claims required by Satius’s infringement contentions. Couplers comprising a transformer with a non-magnetic core, or an obvious variant thereof, was well-known in the art before the alleged invention of the '385 Patent and is described at length in the disclosures of numerous references submitted and charted here. The use of couplers was a well-understood, routine, and conventional technique, at least, in the field in the field of electrical and electromagnetic communications. The same is true of couplers with non-magnetic cores, which was disclosed in (at least) multiple disclosures by the named inventor of the '385 Patent that qualify as prior art under 35 U.S.C. § 102(b) (pre-AIA). *See, e.g.*, U.S. Patent No. 5,818,127, 2:1-9, 9:8-33; U.S. Patent No. 5,559,377, 2:3-49, 4:48-56; *see also* Prosecution History of '385 Patent, Response to Office Action at 5 (June 18, 2003) (“[T]he coupler in the '707 patent can, in fact, be used in the present invention without any modification.”). Beyond the inventor’s own prior art, U.S. Patent No. 2,687,513, which issued August 24, 1954, similarly discloses an “impedance matching [network] between a transmitter output circuit and an antenna input

circuit” using “air-core transformer means.” ’041 Patent, 1:36-44. As another example, U.S. Patent No. 5,986,617, which was filed August 31, 1998 and issued November 16, 1999, taught that an “[a]ir core transformer may be used for reduced losses,” in a device for multiband antenna matching transformers.

The claimed functionality is further disclosed in the prior art cited herein, including the disclosures cited in the claim charts in **Appendices A01 to A29**. If a prior art reference in **Appendices A01 to A29** is argued or found not to disclose the coupler limitation, it would have been obvious to modify or combine with that reference for at least the following reasons in addition to the motivations to combine identified separately in these contentions:

- (1) Combining the prior art limitations according to known transmitting methods would have yielded predictable results.
- (2) Simple substitution of one known element (e.g., a coupler with a magnetic core) for another (i.e., a coupler with a non-magnetic core) would have yielded predictable results.
- (3) Use of a known technique to improve similar devices in the same way would have been obvious.
- (4) Applying a known technique (e.g., coupling electromagnetic signals) to a known device ready for improvement would have yielded predictable results.
- (5) Obvious to try couplers with non-magnetic cores from among a finite number of identifiable, predictable, design choices for a transmitter, with a reasonable expectation of success.
- (6) References disclosing these concepts teach the beneficial utility of them, including as cited in the claim charts submitted herewith.

For example, the ’337 Patent, which issued almost four years before the ’385 Patent was filed, provides a teaching and motivation to use non-magnetic core couplers that mirrors the alleged advantages disclosed by the ’385 Patent. Specifically, the ’377 Patent taught that a “ferrite or iron core transformer ... causes signal distortion due to the non-linear phase characteristic of the transfer function between the transmit coupler and the receiver coupler.”



'377 Patent, 1:44-46. The '377 Patent further notes “[t]he advantage of an air-core transformer” is that it provides “a considerably greater band width around the center frequency when comparing it to the response of a traditional coupler which uses a magnetic-core transformer.” *Id.*, 2:44-49. Similarly, U.S. Patent No. 5,877,667, which was published March 2, 1999, teaches and motivates using a non-magnetic core coupler (e.g., air or SiO<sub>2</sub>) in an integrated circuit transformer because these materials are “low k dielectric[s]” and, thus, “minimize the parasitic capacitance in the semiconductor integrated circuit.” '667 Patent, 6:25-29; *see also* C. Bowick, RF CIRCUIT DESIGN 18 (Butterworth-Heinemann 1982) (discussing the “major problems that are introduced by the use of magnetic cores” such as: (1) “[e]ach core tends to introduce its own losses” and thus adding a magnetic core “could possibly *decrease* the Q of the inductor”; (2) “[t]he permeability of all magnetic cores changes with frequency and usually decreases to a very small value at the upper end of their operating range” and, as a result, “eventually approaches the permeability of air and becomes ‘invisible’ to the circuit; (3) “[t]he higher the permeability of the core, the more sensitive it is to temperature variation” and, as a result, “over wide temperature ranges, the inductance of the coil may vary appreciably”; and (4) “[t]he permeability of the magnetic core changes with applied signal level” so “[i]f too large an excitation is applied, saturation of the core will result”).

If Satus contends that a capacitor in an impedance matching circuit can satisfy the coupler limitation, it was well-known in the art to use one or more capacitors in an impedance matching circuit to adjust the impedance matching characteristics. *See, e.g.*, U.S. Patent No. 4,965,607, 3:47-50 (“The inductors and capacitors are switched into the matching network by relays controlled by the microprocessor.”). A person of ordinary skill understood that “[t]here are many different dielectric materials used in the fabrication of capacitors, such as paper, plastic,

ceramic ... glass, air. Each material has its own advantages and disadvantages.” C. Bowick, RF CIRCUIT DESIGN 12 (Butterworth-Heinemann 1982); *id.* 15 (“Metalized-film capacitors are used in a number of applications, including .... coupling.”).

Samsung may rely upon the cited disclosures, among others, to show and illustrate the motivations to combine. Specific evidence of the motivation to combine includes the references and passages therein cited in the claim charts submitted herewith for the applicable claim limitations, which reflect the reasons and motivations to combine and modify listed above and additional reasons and motivations to combine and modify that Samsung may rely upon. Samsung also expect to rely on expert testimony regarding motivation to combine.

For example, the references or products in the left column below each disclose “a transmitter having an output impedance, said transmitter for transmitting the electric or electromagnetic signals at a preselected frequency,” at least under the scope of the claims implied by Satius’s infringement contentions. For at least the motivations discussed above, any one of the references or products can be combined with any of the references or products in the right column below, which disclose RF couplers, or transformers.

<b>References disclosing the coupler limitation (at least under the scope of the claims required by Satius’s infringement contentions)</b>	<b>References that a person of skill would be motivated to use with a non-magnetic core coupler</b>
US 6,188,364 (Scordilis)	US 5,778,308 (Sroka)
US 2,687,513 (Lindenblad)	US 6,219,532 (Tanaka)
US 6,396,363 (Alexanian)	US 5,589,844 (Belcher)
US 6,026,286 (Long)	US 6,121,940 (Skahill)
US 5,818,127 (Abraham 127)	US 5,874,926 (Tsuru)
US 6,396,362 (Mourant)	US 6,414,562 (Bouisse)
US 5,559,377 (Abraham 377)	Prior Art Samsung Devices
US 5,420,558 (Ito)	Prior Art Nokia Devices
US 5,969,590 (Gutierrez)	Prior Art Ericsson Devices
US 6,486,765 (Katayangi)	Prior Art Motorola Devices
US 6,100,773 (Nakamichi)	Prior Art Qualcomm Devices
US 5,565,881 (Phillips)	
US 5,281,932 (Even-Or)	

<b>References disclosing the coupler limitation (at least under the scope of the claims required by Satius's infringement contentions)</b>	<b>References that a person of skill would be motivated to use with a non-magnetic core coupler</b>
WO 1998040980 (Abraham 980)	
US 4,785,345 (Rawls)	
US 5,877,667 (Wollesen)	
US 6,104,707 (Abraham 707)	
US 5,467,098 (Bonebright)	
US 6,177,872 (Kodukula)	
US 6,346,913 (Chang)	
US 4,965,607 (Wilkins)	

**(c) Transformer communicating signals to the air limitation (Claim 1)**

Asserted claim 1 of the '385 Patent recites limitations regarding use of a transformer communicating signals to the air:

- “said transformer communicating the electric or electromagnetic signals to the air” (claim 1)

Notwithstanding Samsung's contentions under 35 U.S.C. §§ 101, 112 (pre-AIA), nothing about this claim limitation adds anything novel or non-obvious over the prior art, at least under the scope of the claims required by Satius's infringement contentions. Transformers communicating electromagnetic signals to antennas were well-known in the art long before the alleged invention of the '385 Patent and are described at length in the disclosures of numerous references submitted and charted here. Moreover, Plaintiff's infringement contentions appear to contend that an antenna communicating electromagnetic signals to the air meets this limitation. It was a well-understood, routine, and conventional technique, at least, in the field in the field of electromagnetic communications to use an impedance matching circuit or transformer between an RF transmitter and antenna (or between an RF transmitter and a transmission line or waveguide to an antenna), where the antenna radiates signals to the air in the form of electromagnetic waves. This functionality is disclosed in the prior art cited herein, including the

disclosures cited in the claim charts in **Appendices A01 to A29**.

For example, U.S. Patent No. 2,687,513, which issued August 24, 1954, discloses an “impedance matching [network] between a transmitter output circuit and an antenna input circuit” using “air-core transformer means.” ’041 Patent, 1:36-44. Similarly, U.S. Patent No. 4,965,607, which issued on October 23, 1990, discloses an “antenna coupler” that “matches the output impedance of typically a 50-ohm transmitter to the input impedance of a non-broadband antenna.” ’607 Patent, 2:14-18. The coupler in the ’607 Patent couples “an RF (radio frequency) input signal” using a “4:1 impedance transformer.” ’607 Patent, 2:25-28. As another example, U.S. Patent No. 5,400,041, which issued on March 21, 1995, discloses an impedance matching transformer for use in RF circuits “to match the input impedance of the antenna to that of the antenna feed line.” ’041 Patent, 1:25-31; *see also* U.S. Patent No. 6,414,562, 1:9-21 (“The performance of an RF power amplifier depends on the impedance of a load coupled to the output of the RF power amplifier. An RF power amplifier is generally designed to perform optimally when the load impedance has a predetermined value such as, for example, 50 ohms ( $\Omega$ ). When the load impedance differs from the predetermined value, the performance, such as output power, efficiency, linearity, etc., of the power amplifier is degraded. In communications applications, an RF power amplifier is typically used to amplify an RF signal before the RF signal is transmitted through an antenna. The impedance of the antenna depends on the environment in which the antenna operates.”).

As another example, U.S. Patent No. 4,951,006, which issued in 1990, discloses that an “antenna serves the dual function of radiating the energy generated and also impedance matching ... to transform the output impedance level of the oscillator (typically about 50 ohms) to the higher impedance level of free space or a waveguide (i.e. greater than or equal to about 377

ohms) providing a load.” ’006 Patent, 1:27-33. The ’006 Patent also discloses a “solid state millimeter wave oscillator in lump element circuit form” that “eliminates the need for a separate antenna in a spatial power combining application.” *Id.*, 1:34-37.

Likewise, another prior art reference that issued in 1996 notes that “[f]or transmitting antennas having a narrow tuned band width, it is imperative to achieve an optimum performance level such that maximum radio frequency energy is radiated.” U.S. Patent No. 5,589,844, 1:11-13. “This is especially true for applications in mobile radio, where the radio transmitters are typically power limited. One way to maximize the effective radiated power is to ensure that the impedance of the antenna is conjugately matched to the output of a transmit amplifier output stage by using a so-called pi-type impedance matching network having shunt capacitive circuit elements and one or more series inductive circuit elements.” *Id.*, 1:14-20.

In addition, transformers communicating signals directly to the air, or obvious variants thereof, were also well-known in the art before the alleged invention of the ’385 Patent. For example, in U.S. Patent No. 6,396,363, describes a planar mode transformer coupled to a waveguide where the mode transformer communicates RF signals directly to the air in a waveguide. *See id.* at 2:49-53 (“A transition from a planar transmission line to a waveguide comprises a planar transmission line disposed on a substrate and a mode transformer to convert a transverse electric or quasi-transverse electric mode signal carried by the transmission line to a waveguide mode signal.”).

If a prior art reference in **Appendices A01 to A29** is argued or found not to disclose the transformer communicating signals to the air limitation, it would have been obvious to modify or combine with that reference for at least the following reasons in addition to the motivations to combine identified separately in these contentions:

- (1) Combining the prior art limitations according to known transmitting methods would have yielded predictable results.
- (2) Simple substitution of one known element (e.g., a transformer that is communicating electromagnetic signals to an antenna) for another (a transformer communicating those electromagnetic signals to the air) would have yielded predictable results.
- (3) Use of a known technique to improve similar devices in the same way would have been obvious.
- (4) Applying a known technique to a known device ready for improvement would have yielded predictable results. For example, a person of ordinary skill would understand that a coupler / transformer used to impedance match a transformer to one type of load could be used in the same way a transformer communicating signals to an antenna or, alternatively, to air. Indeed, during prosecution of the '385 Patent, the inventor admitted that "the coupler in the '707 patent," which is connected to a powerline, "can, in fact, be used in the present invention without any modification." Prosecution History of '385 Patent, Response to Office Action at 5 (June 18, 2003).
- (5) Obvious to try a transformer communicating electromagnetic signals to the air from among a finite number of identifiable, predictable, design choices for a transformer, with a reasonable expectation of success.
- (6) References disclosing these concepts teach the beneficial utility of them, including as cited in the claim charts submitted herewith.

Samsung may rely upon the cited disclosures, among others, to show and illustrate the motivations to combine. Specific evidence of the motivation to combine includes the references and passages therein cited in the claim charts submitted herewith for the applicable claim limitations, which reflect the reasons and motivations to combine and modify listed above and additional reasons and motivations to combine and modify that Samsung may rely upon. Samsung also expect to rely on expert testimony regarding motivation to combine.

For example, the references or products in the left column below each disclose a "transformer communicating the electric or electromagnetic signals to the air," at least under the scope of the claims implied by Satius's infringement contentions. For at least the motivations discussed above, any one of the references or products can be combined with any of the

references or products in the right column below, which disclose RF transmitters, couplers, or transformers.

<b>References disclosing the transformer communicating signals to the air limitation (at least under the scope of the claims required by Satius's infringement contentions)</b>	<b>References that a person of skill would be motivated to use with a transformer communicating signals to the air</b>
US 5,778,308 (Sroka)	US 5,818,127 (Abraham 127)
US 6,188,364 (Scordilis)	US 6,396,362 (Mourant)
US 2,687,513 (Lindenblad)	US 5,559,377 (Abraham 377)
US 6,396,363 (Alexanian)	US 5,420,558 (Ito)
US 6,026,286 (Long)	US 5,969,590 (Gutierrez)
US 6,219,532 (Tanaka)	US 6,486,765 (Katayangi)
US 6,100,773 (Nakamichi)	US 4,785,345 (Rawls)
US 5,589,844 (Belcher)	US 5,877,667 (Wollesen)
US 5,565,881 (Phillips)	US 6,104,707 (Abraham 707)
US 5,281,932 (Even-Or)	Prior Art Samsung Devices
US 6,121,940 (Skahill)	Prior Art Nokia Devices
WO 1998040980 (Abraham 980)	Prior Art Ericsson Devices
US 5,874,926 (Tsuru)	Prior Art Motorola Devices
US 6,414,562 (Bouisse)	Prior Art Qualcomm Devices
US 5,467,098 (Bonebright)	
US 6,177,872 (Kodukula)	
US 6,346,913 (Chang)	
US 4,965,607 (Wilkins)	
US 5,400,041 (Strickland)	
US 4,951,006 (Cohen)	

**(d) Coupler matching impedance limitation (Claim 1)**

Asserted claim 1 of the '385 Patent recite limitations regarding use of a coupler matching the output impedance of the transmitter to the characteristic impedance of the air:

- “coupler matching the output impedance of the transmitter to the characteristic impedance of the air” (claim 1)

Notwithstanding Samsung's contentions under 35 U.S.C. §§ 101, 112 (pre-AIA), nothing about this claim limitation adds anything novel or non-obvious over the prior art, at least under the scope of the claims required by Satius's infringement contentions. Couplers or transformers matching the output impedance of a transmitter to the input impedance of the next circuit in the



transmitter chain (e.g., a transmission line or an antenna) were well-known in the art before the alleged invention of the '385 Patent and are described at length in the disclosures of numerous references submitted and charted here. Impedance matching was a well-understood, routine, and conventional technique in the field in the field of communication systems. For example, a technical report published by MIT over 50 years before the '385 Patent was filed<sup>1</sup> notes that “[t]he transfer of power from a generator to a load constitutes *one of the fundamental problems in the design of communication systems*” and “in every case” involves “the design of a lossless coupling network to transform a given load into another specified impedance” (i.e., “the[] operation ... [of] ‘impedance matching’”). See R. M. Fano, “Theoretical Limitations on the Broadband Matching of Arbitrary Impedances” at 1 (MIT 1948). As another example, U.S. Patent No. 4,201,960, which was granted on May 6, 1980, discloses “a method for matching the output of a radio transmitter to an antenna” and notes that the “prior art has developed numerous methods for the running of a radio frequency antenna to the output impedance of the transmitter.” ’960 Patent, 1:8-13; see also U.S. Patent No. 4,038,662, 4:3-57 (disclosing an invention to “provide[] a good impedance match with the impedance of free space” over “a relatively broad frequency range”); see also D. Pozar, MICROWAVE ENGINEERING 251 (2d Ed. 1998) (“Impedance matching or tuning is important for the following reasons: Maximum power is delivered ... and power loss in the feed line is minimized.”); Prosecution History of ’385 Patent, Response to Office Action at 5 (June 18, 2003) (“[T]he coupler in the ’707 patent can, in fact, be used in the present invention without any modification.”); see also U.S. Patent No. 6,121,940, 1:16-44 (“To achieve maximum power transfer in a radio frequency circuit, a circuit receiving a signal (load) should have an impedance with its resistance equal to the resistance of

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<sup>1</sup> R.M. Fano, “Theoretical Limitations on the Broadband Matching of Arbitrary Impedances,” Tech. Rpt. No. 41 at 1, Research Laboratory of Electronics (MIT Jan. 2, 1948).



the impedance of the circuit generating the signal (source) and a reactance that is equal in magnitude but of opposite sign to the reactance of the circuit generating the signal. When the load and source are of different impedances, it is desirable to interpose an impedance matching circuit between the source and the load to transform the source and load impedances to a common value, usually the characteristic impedance (which is a real, and not complex, quantity) of the transmission line connecting the source and the transformed load. When the source and the load are properly matched to the characteristic impedance, maximum power transfer is achieved and signal reflections are minimized.”).

The claimed functionality is further disclosed in the prior art cited herein, including the disclosures cited in the claim charts in **Appendices A01 to A29**. If a prior art reference in **Appendices A01 to A29** is argued or found not to disclose the coupler limitation, it would have been obvious to modify or combine with that reference for at least the following reasons in addition to the motivations to combine identified separately in these contentions:

- (1) Combining the prior art limitations according to known transmitting methods would have yielded predictable results.
- (2) Simple substitution of one known element (e.g., a coupler matching the output impedance of a transmitter to the impedance of an antenna) for another (i.e., a coupler matching the output impedance of a transmitter to the characteristic impedance of the air) would have yielded predictable results.
- (3) Use of a known technique to improve similar devices in the same way would have been obvious.
- (4) Applying a known technique (e.g., a coupler matching the output impedance of a transmitter to the characteristic impedance of the air) to a known device ready for improvement would have yielded predictable results.
- (5) Obvious to try a transformer communicating electromagnetic signals to the air from among a finite number of identifiable, predictable, design choices for a transmitter, with a reasonable expectation of success.
- (6) References disclosing these concepts teach the beneficial utility of them, including as cited in the claim charts submitted herewith.

For example, U.S. Patent No. 5,400,041, which was published March 21, 1995 (over five years before the '385 Patent was filed), taught that impedance matching was “well known in the art” and is “necessary” when using wireless communication with an antenna system “in order to maximize power transfer from the feed line to the antenna”:

As is also well known in the art, when two sections or components of different impedances are connected together, **an impedance transformer is invariably required** to ensure maximum power transfer from one section to another. In the case of a microwave antenna, **it is necessary to match the input impedance of the antenna to that of the antenna feed line**, in order to maximize power transfer from the feed line to the antenna. This matching is normally performed by a section of metal extending from the antenna patch and the end of which is connected to the feed connector.

'041 Patent, 1:25-35 (emphasis added).

*See also, e.g.*, U.S. Patent No. 6,424,232, 1:18-23 (disclosing an impedance matching network to “match[] the impedance of a load with the internal impedance of a radio frequency (RF) power generator to provide maximum transfer”); U.S. Patent No. 6,177,872, 1:15-23 (“In order to reduce reflections, improve signal quality, and supply the greatest power from a source to a load, the impedance ‘looking into the load’ from *the source should match the output impedance of the source*. Additionally, since a mismatched line has different properties at different frequencies, *a mismatched circuit is generally unsuitable for broadband or multi-frequency use*. Consequently, relatively broadband circuit applications are *particularly needful of impedance matching circuits*.”); U.S. Patent No. 6,259,930, 1:40-2:43 (noting that “when the portable telephone employing the  $\lambda/2$  monopole antenna comes in close contact with the human body, the standing wave ratio (SWR) increases, thus deteriorating the antenna characteristics” and disclosing an invention that addresses this problem by improved impedance matching the impedance of an “RF (Radio Frequency) module ... and an antenna”); Straw, THE ARRL ANTENNA BOOK 25-1 (18th ed. 1997) (“If the impedance at the input of the transmission line

connected to the transmitter differs appreciably from the load resistance into which the transmitter output circuit is designed to operate, an impedance-matching network must be inserted between the transmitter and the line input terminals. ... Nowadays, radio amateurs commonly call such a device an *antenna tuner*. The function of an antenna tuner is to transform the impedance at the input end of the transmission line—whatever it may be—to the 50  $\Omega$  needed to keep the transmitter loaded properly.”).

Similarly, U.S. Patent No. 5,77,308, which issued in 1998, taught that “[a]n important parameter to consider, when designing an antenna, is characteristic impedance and in order to effect maximum power transfer between an antenna and circuitry connected thereto, it is important to ensure that the characteristic impedance of the antenna is matched by the characteristic impedance of the associated circuitry.” ’308 Patent, 1:20-25. “However, the characteristic impedance of the antenna will also vary with operating conditions,” for example when it is “placed on table tops, close to a vehicle facia and, when in operation close to a user.” *Id.*, 1:29-32. The ’308 Patent teaches that “[e]ach of these position will result in modifications ... to the characteristic impedance of the antenna[,] which may interfere with the normal operation of the telephone.” *Id.*, 1:32-35. This is because “a mis-match occurs between the characteristic impedance of an antenna and the impedance of associated circuitry,” which means “the transfer of power between these two devices will be less than optimum.” *Id.*, 1:36-39. For this reason, the ’308 Patent teaches an “adaptive antenna matching network” where “the impedance of said matching network is adjusted in response to the operating environment of the antenna,” which is determined by measuring “the level of signals being reflected due directly to antenna mis-match.” ’308 Patent, 2:16-29. Thus, the ’308 Patent taught that the characteristic impedance of an antenna in a mobile device is a function of its environment and motivated techniques for

measuring and adapting to impedance mis-matches between the antenna and the circuitry connected to the antenna to improve power transfer. *See also* U.S. Patent No. 6,414,562, 1:17-21 (“In communications applications, an RF power amplifier is typically used to amplify an RF signal before the RF signal is transmitted through an antenna. The impedance of the antenna depends on the environment in which the antenna operates.”).

As another example, U.S. Patent No. 6,738,603 teaches that the input impedance of an antenna in a mobile device can be affected by the presence of earphone plugged into the device. The '603 Patent teaches an invention that selects “one of the at least two terminal impedance values” to improve impedance matching when an earphone is present. '603 Patent, 6:16-23. Similarly, U.S. Patent No. 5,565,881, which issued in 1996, notes that an antenna in a radio telephone can be detuned or blocked by the operator holding the device. *See* '881 Patent, 1:13-20. As another example, U.S. Patent No. 6,219,532, which was filed in 1998, discloses a device that detects “whether or not a human body is [in] contact with the movable radio terminal device,” and adjusting the impedance matching circuitry to account for human contact, which can change the impedance seen at an antenna. *See* '532 Patent, 9:10-49. Similarly, U.S. Patent No. 6,100,773, filed in 1998, teaches that when a “user carries the antenna in his hand and holds it close to this ear, the antenna is affected by the human body in terms of dielectric constant.” '773 Patent, 1:27-30. “The result is a disturbed electromagnetic field and a mismatched impedance , which in turn cause trouble in communications.” *Id.*, 1:30-32. The '773 Patent teaches and motivates using “an impedance matching device” connected to the antenna on one side and a “high frequency circuit” on the other side “[t]o prevent such a problem from happening.” *Id.*, 1:32-35. “The high frequency circuit ... very often includes an impedance matching device between circuit blocks as well as in the connection with the antenna, since the

inclusion reduces reflected waves and better transmits signals.” *Id.*, 1:55-58.

Another prior art reference similarly discloses that “[i]mpedance matching *is often necessary in the design of RF circuitry* to provide the maximum possible transfer of power between a source and its load.” C. Bowick, RF CIRCUIT DESIGN 66 (Butterworth-Heinemann 1982). “[I]n most instances, extreme care is taken during the initial design of such [RF] front end to make sure that each device in the chain is matched to its load.” *Id.* Typically, the device before the antenna system in wireless RF communication systems is a power amplifier. “Since power amplifiers are designed to supply a considerable amount of power to an antenna system, an impedance mismatch presented to the amplifier could cause very severe problems.” *Id.* 160. The prior art also taught persons of skill that “[a]n antenna presents a driving-point impedance to the source or load to which it is connected, and so impedance mismatch with the feed line can occur,” which can “degrade[] antenna performance, and is dependent on the external circuitry which is connected to the antenna.” *See* D. Pozar, MICROWAVE ENGINEERING 656 (2d Ed. 1998).

Another prior art reference discloses that “[w]hen connecting an antenna to a transmission line, it is import to make effective use of all available power from the transmitter in the transmit case .... There are two primary considerations: the impedance match between the antenna and transmission line, and the excitation of the current distribution on the antenna.” W.L. Stutman & G.A. Thiele, ANTENNA THEORY & DESIGN 180 (Wiley 2d ed. 1998). “It is well known that maximum power is transferred when there is a conjugate impedance match” and “if the system were operated with a poor match at the antenna, there would be reflections set up along the transmission line.” *Id.*

Thus, a person of skill was motivated to use a coupler to match the output impedance of a transmitter, or whatever device precedes the antenna system (e.g., a power amplifier), to the

input impedance of the antenna system or the transmission line leading to the antenna system.

If the load of interest is air, then a person of ordinary skill would understand that the output impedance of the device in the chain directly before air (whether a transformer or an antenna system) should be matched to the characteristic impedance of air to ensure maximum power transfer to air. This matching would be done at the frequency of interest because “we are dealing with *reactances*, which are frequency dependent” and, therefore, “the *perfect* impedance match can occur only at one frequency.” *Id.* 67 (emphasis in original). The prior art also taught a person of skill the advantage of matching the impedance of an antenna system to the characteristic impedance of air. For example, U.S. Patent No. 4,809,011, which was published on February 28, 1989, a full decade before the ’385 Patent was filed, taught that matching an antenna’s impedance to free space allows “maximum power transfer” to free space. ’011 Patent, 2:35-29. This is because matching to the impedance of free space will “minimize reflections of electromagnetic waves leaving the ... antenna ... into free space.” ’011 Patent, 3:49-53.

Matching a transmission medium to the impedance of the surrounding air at the frequency of interest is also disclosed in U.S. Patent No. 5,563,616, 4:22-44; *see also id.*, 3:19-26 (noting “the present invention provides an improved impedance match between the transmission medium and the surrounding free space” at the frequency of interest); *see also* U.S. Patent No. 3,349,397, 2:51-3:11 (disclosing the use of sheet materials with a resistivity of 377 ohms per square “to match the impedance of free space so that no reflection is obtained” at the interface with free space). The prior art similarly taught a person of ordinary skill that the input impedance of an antenna could vary for a variety of reasons, “such as a change in ambient temperatures, an aging change, or direct touch of a human body to the antenna,” which would cause unwanted “reflection waves” at the “input terminal of the antenna,” which would not only cause a loss in

useful energy but potential damage to the circuits that receive the reflected signals, such as a power amplifying circuit. *See* U.S. Patent No. 5,862,458, 1:22-31. This further motivated a person of ordinary skill to design impedance matching circuitry that can account variations in an antenna's input impedance, such as those caused by the conditions of the surrounding air or objects contacting the antenna.

Samsung may rely upon the cited disclosures, among others, to show and illustrate the motivations to combine. Specific evidence of the motivation to combine includes the references and passages therein cited in the claim charts submitted herewith for the applicable claim limitations, which reflect the reasons and motivations to combine and modify listed above and additional reasons and motivations to combine and modify that Samsung may rely upon. Samsung also expect to rely on expert testimony regarding motivation to combine.

For example, the references or products in the left column below each disclose a "coupler matching the output impedance of the transmitter to the characteristic impedance of the air," at least under the scope of the claims implied by Satius's infringement contentions. For at least the motivations discussed above, any one of the references or products can be combined with any of the references or products in the right column below, which disclose RF transmitters, couplers, or transformers.

<b>References disclosing the coupler matching to the characteristic impedance of air limitation (at least under the scope of the claims required by Satius's infringement contentions)</b>	<b>References that a person of skill would be motivated to use with a coupler matching to the characteristic impedance of air</b>
US 5,778,308 (Sroka)	US 5,818,127 (Abraham 127)
US 6,188,364 (Scordilis)	US 6,396,362 (Mourant)
US 2,687,513 (Lindenblad)	US 5,559,377 (Abraham 377)
US 6,396,363 (Alexanian)	US 5,420,558 (Ito)
US 6,026,286 (Long)	US 5,969,590 (Gutierrez)
US 6,219,532 (Tanaka)	US 6,486,765 (Katayangi)
US 6,100,773 (Nakamichi)	US 4,785,345 (Rawls)
US 5,589,844 (Belcher)	US 5,877,667 (Wollesen)

US 5,565,881 (Phillips)	US 6,104,707 (Abraham 707)
US 5,281,932 (Even-Or)	Prior Art Samsung Devices
US 6,121,940 (Skahill)	Prior Art Nokia Devices
WO 1998040980 (Abraham 980)	Prior Art Ericsson Devices
US 5,874,926 (Tsuru)	Prior Art Motorola Devices
US 6,414,562 (Bouisse)	Prior Art Qualcomm Devices
US 5,467,098 (Bonebright)	
US 6,346,913 (Chang)	
US 6,177,872 (Kodukula)	
US 4,965,607 (Wilkins)	
US 5,400,041 (Strickland)	
US 4,951,006 (Cohen)	
US 4,201,960 (Skutta)	
US 4,038,662 (Turner)	
US 6,424,232 (Mavretic)	
US 4,809,011 (Kunz)	
US 5,563,616 (Dempsey)	
US 3,349,397 (Rosenthal)	
US 5,862,458 (Ishii)	
W.L. Stutman & G.A. Thiele, ANTENNA THEORY & DESIGN (Wiley 2d ed. 1998)	
Straw, THE ARRL ANTENNA BOOK 25-1 (18th ed. 1997)	

**(e) Two conductive plates limitation (claim 11)**

Asserted claim 11 of the '385 Patent recite limitations regarding a transformer comprised of two conductive layers:

- “a first conductive plate; a second conductive plate placed underneath and spaced apart from the first conductive plate; wherein the first conductive plate is matched to the characteristic impedance of the air at a preselected bandwidth” (claim 11)

Notwithstanding Samsung’s contentions under 35 U.S.C. §§ 101, 112 (pre-AIA), nothing about this claim limitation adds anything novel or non-obvious over the prior art, at least under the scope of the claims required by Satius’s infringement contentions. Transformers comprising conductive plates spaced apart from each other, or an obvious variant thereof, was well-known in the art before the alleged invention of the '385 Patent and is described at length in the disclosures of numerous references submitted and charted here.



The claimed functionality is disclosed in the prior art cited herein, including the disclosures cited in the claim charts in **Appendices A01 to A29**. For example, U.S. Patent No. 5,281,932, which issued January 25, 1994, discloses a transformer comprised of two metal, planar inductive components that “are overlapped and arranged a short distance apart from each other.” ’932 Patent, 7:8-12. Similarly, U.S. Patent No. 5,497,137, which issued March 5, 1996, discloses a chip type balun transformer designed using metal strip lines formed on different dielectric substrate layers. ’137 Patent, 3:63-4:67. To the extent Plaintiff contends that this limitation can be satisfied by a capacitor in an impedance matching transformer, this too was well-known in the prior art. *See, e.g.*, U.S. Patent No. 4,201,960 (issued May 6, 1980), 2:51-62 (using “five input shunt capacitors” to match the output impedance of a radio transmitter to an antenna); C. Bowick, RF CIRCUIT DESIGN 12 (Butterworth-Heinemann 1982) (“Capacitors are used extensively in RF applications, such as bypassing, interstage coupling, and in resonant circuits and filters.”). U.S. Patent No. 5,969,590, which was filed in 1997, notes that “[i]t is possible to design and build an integrated electronic circuit (IC) that includes reactive elements that are fully integrated structurally and functionally, with other components of the IC.” ’590 Patent, 1:19-22. “[T]he design and manufacture of IC capacitors are well established.” *Id.*, 1:22-23.

One prior art reference that was filed in 1998 teaches that “[m]any efforts have recently been made to minimize the sizes and prices, and at the same time maximize the function, of high frequency devices including a high frequency wireless device, satellite broadcast receiver, and a wireless LAN system.” U.S. Patent No. 6,100,773, 1:14-18. Thus, the reference notes “demands are high for smaller, thinner, and cheaper electronics components for high frequency circuits incorporated in those devices.” *Id.*, 1:18-20. One electronic component that the industry was

motivated to incorporate into wireless RF devices are impedance matching devices. *Id.*, 1:25-34; *see also* U.S. 4,785,345, 1:13-15 (“In the current world of semiconductor electronics, the need for ever-smaller components is constantly increasing.”).

If a prior art reference in **Appendices A01 to A29** is argued or found not to disclose the coupler limitation, it would have been obvious to modify or combine with that reference for at least the following reasons in addition to the motivations to combine identified separately in these contentions:

- (1) Combining the prior art limitations according to known transmitting methods would have yielded predictable results.
- (2) Simple substitution of one known element (e.g., one type of transformer) for another (i.e., a transformer comprised of two conductive plates spaced apart from each other) would have yielded predictable results.
- (3) Use of a known technique to improve similar devices in the same way would have been obvious.
- (4) Applying a known technique (e.g., a transformer comprised of two conductive plates spaced apart from each other with one plate matched to the characteristic impedance of the transmission medium or device at its output) to a known device ready for improvement would have yielded predictable results.
- (5) Obvious to try a transformer comprised of two conductive plates spaced apart from each other from among a finite number of identifiable, predictable, design choices for a transmitter, with a reasonable expectation of success.
- (6) References disclosing these concepts teach the beneficial utility of them, including as cited in the claim charts submitted herewith.

Samsung may rely upon the cited disclosures, among others, to show and illustrate the motivations to combine. Specific evidence of the motivation to combine includes the references and passages therein cited in the claim charts submitted herewith for the applicable claim limitations, which reflect the reasons and motivations to combine and modify listed above and additional reasons and motivations to combine and modify that Samsung may rely upon.

Samsung also expect to rely on expert testimony regarding motivation to combine.

For example, the references or products in the left column below each disclose “a first conductive plate; a second conductive plate placed underneath and spaced apart from the first conductive plate; wherein the first conductive plate is matched to the characteristic impedance of the air at a preselected bandwidth,” at least under the scope of the claims implied by Satius’s infringement contentions. For at least the motivations discussed above, any one of the references or products can be combined with any of the references or products in the right column below, which disclose RF transmitters, couplers, or transformers.

<b>References disclosing the two conductive plates limitation (at least under the scope of the claims required by Satius’s infringement contentions)</b>	<b>References that a person of skill would be motivated to use with a transformer comprised of two conductive plates</b>
US 6,188,364 (Scordilis)	US 5,778,308 (Sroka)
US 6,026,286 (Long)	US 2,687,513 (Lindenblad)
US 6,396,362 (Mourant)	US 6,396,363 (Alexanian)
US 5,420,558 (Ito)	US 5,818,127 (Abraham 127)
US 5,969,590 (Gutierrez)	US 5,559,377 (Abraham 377)
US 6,486,765 (Katayangi)	US 6,219,532 (Tanaka)
US 6,100,773 (Nakamichi)	US 5,589,844 (Belcher)
US 5,565,881 (Phillips)	US 6,121,940 (Skahill)
US 5,281,932 (Even-Or)	WO 1998040980 (Abraham 980)
US 4,785,345 (Rawls)	US 5,874,926 (Tsuru)
US 5,877,667 (Wollesen)	US 6,414,562 (Bouisse)
US 6,177,872 (Kodukula)	US 6,104,707 (Abraham 707)
US 5,497,137 (Fujiki)	US 5,467,098 (Bonebright)
US 4,201,960 (Skutta)	US 6,346,913 (Chang)
	Prior Art Samsung Devices
	Prior Art Nokia Devices
	Prior Art Ericsson Devices
	Prior Art Motorola Devices
	Prior Art Qualcomm Devices

**(f) Deposition of metallic layers limitation (claim 18)**

Asserted claim 18 of the ’385 Patent recite limitations regarding a transformer comprised of two conductive layers:

- “wherein the first conductive plate and the second conductive plate are formed directly in a chip by deposition of metallic layers onto the chip” (claim 18)

Notwithstanding Samsung's contentions under 35 U.S.C. §§ 101, 112 (pre-AIA), nothing about this claim limitation adds anything novel or non-obvious over the prior art, at least under the scope of the claims required by Satius's infringement contentions. Forming conductive plates by deposition of metallic layers was well-known in the art before the alleged invention of the '385 Patent and is described at length in the disclosures of numerous references submitted and charted here. The claimed functionality is disclosed in the prior art cited herein, including the disclosures cited in the claim charts in **Appendices A01 to A29**. In the field of semiconductor and integrated circuit design, deposition is one of, maybe the most, widespread method for placing metallic layers onto semiconductor surfaces. *See, e.g.*, J.A. Amick & Werner Kern, *Chemical Vapor Deposition Techniques for the Fabrication of Semiconductor Devices*, in CHEMICAL VAPOR DEPOSITION: SECOND INT'L CONF. 551, 551 (Blocher et al. ed., 1970) ("Because of the importance of these thin film materials, the electronics industry has invested heavily in the development of new deposition technology.... Chemical vapor deposition (CVD) is one of the most versatile of the deposition techniques employed in the electronics industry.... By suitable choice of chemical reagents, it is possible to deposit an extraordinary variety of film materials on a wide range of substrates."); *id.* at 557 ("A large number of metal scan be deposited by hydrogen reduction of metal halides ...."). To the extent that Plaintiff contends that a capacitor in an impedance matching circuit can satisfy this limitation, it was well-known in the art to form capacitors with metal lines. C. Bowick, RF CIRCUIT DESIGN 15 (Butterworth-Heinemann 1982) ("Metalized-film capacitors are used in a number of applications, including ... coupling."). As noted, deposition was the most common way to form metal lines on and in semiconductor substrates and layers. U.S. Patent No. 6,087,996, which was filed February 21, 1997, recognized that "circuit elements, such as capacitors, inductors, or transformers are created

during the deposition of ... conductive film.” ’996 Patent, 4:12-15.

If a prior art reference in **Appendices A01 to A29** is argued or found not to disclose the coupler limitation, it would have been obvious to modify or combine with that reference for at least the following reasons in addition to the motivations to combine identified separately in these contentions:

- (1) Combining the prior art limitations according to known transmitting methods would have yielded predictable results.
- (2) Simple substitution of one known element (e.g., forming metallic layers on chip) for another (i.e., forming metallic layers via deposition of metallic layers) would have yielded predictable results.
- (3) Use of a known technique to improve similar devices in the same way would have been obvious.
- (4) Applying a known technique (e.g., forming metallic layers by depositing those layers onto the chip) to a known device ready for improvement would have yielded predictable results.
- (5) Obvious to try forming metallic layers using deposition techniques from among a finite number of identifiable, predictable, design choices for forming metallic layers, with a reasonable expectation of success.
- (6) References disclosing these concepts teach the beneficial utility of them, including as cited in the claim charts submitted herewith.

Samsung may rely upon the cited disclosures, among others, to show and illustrate the motivations to combine. Specific evidence of the motivation to combine includes the references and passages therein cited in the claim charts submitted herewith for the applicable claim limitations, which reflect the reasons and motivations to combine and modify listed above and additional reasons and motivations to combine and modify that Samsung may rely upon. Samsung also expect to rely on expert testimony regarding motivation to combine.

Moreover, to the extent this claim adds a product-by-process limitation about how the conductive plates are formed (i.e., by deposition of metallic layers onto the chip), the process

step does not impart any structural or functional differences over the prior art and is, therefore, irrelevant for purposes of invalidity. *See, e.g., Amgen Inc. v. F. Hoffman–La Roche Ltd.*, 580 F.3d 1340, 1369 (Fed. Cir. 2009) (“In determining validity of a product-by-process claim, the focus is on the product and not the process of making it.”).

For example, the references or products in the left column below each disclose forming conductive plates “directly in a chip by deposition of metallic layers onto the chip,” at least under the scope of the claims implied by Satius’s infringement contentions. For at least the motivations discussed above, any one of the references can be combined with any of the references or products can be combined with any of the references or products in the right column below, which disclose RF transmitters, couplers or transformers.

<b>References disclosing the deposition limitation (at least under the scope of the claims required by Satius’s infringement contentions)</b>	<b>References that a person of skill would be motivated to use deposition to form conductive plates</b>
US 6,188,364 (Scordilis)	US 5,778,308 (Sroka)
US 6,396,363 (Alexanian)	US 2,687,513 (Lindenblad)
US 5,420,558 (Ito)	US 6,026,286 (Long)
US 5,969,590 (Gutierrez)	US 5,818,127 (Abraham 127)
US 6,100,773 (Nakamichi)	US 6,396,362 (Mourant)
US 5,281,932 (Even-Or)	US 5,559,377 (Abraham 377)
US 5,877,667 (Wollesen)	US 6,219,532 (Tanaka)
US 6,177,872 (Kodukula)	US 6,486,765 (Katayangi)
J.A. Amick & Werner Kern, Chemical Vapor Deposition Techniques for the Fabrication of Semiconductor Devices, in CHEMICAL VAPOR DEPOSITION: SECOND INT’L CONF. 551 (Blocher et al ed., 1970)	US 5,589,844 (Belcher)
US 6,346,913 (Chang)	US 5,565,881 (Phillips)
US 6,087,996 (Dery)	US 6,121,940 (Skahill)
	WO 1998040980 (Abraham 980)
	US 5,874,926 (Tsuru)
	US 6,414,562 (Bouisse)
	US 4,785,345 (Rawls)
	US 6,104,707 (Abraham 707)
	US 5,467,098 (Bonebright)
	Prior Art Samsung Devices
	Prior Art Nokia Devices
	Prior Art Ericsson Devices



References disclosing the deposition limitation (at least under the scope of the claims required by Satius's infringement contentions)	References that a person of skill would be motivated to use deposition to form conductive plates
	Prior Art Motorola Devices
	Prior Art Qualcomm Devices

## 2. Application of the Prior Art to the Claims

Samsung's disclosure of anticipating references is provided above with reference to the claim charts submitted herewith. With respect to obviousness, a person of ordinary skill in the art would be able to modify or combine each feature present in the prior art described above to arrive at the Asserted Claims of the Asserted Patent. The table below discloses combinations of references through which the Asserted Claims are anticipated by or obvious over the prior art cited herein. The discussion above accompanying each category sets forth the detailed rationale and motivation for combining each category's respective references with respect to the claimed features they disclose.

Samsung also reserves the right to rely on any combination of references describing the products or systems listed in the **Appendices**, *infra*, in order to establish obviousness of the Asserted Claims. Such references would have been regarded as readily combinable by one of ordinary skill in the art because they address the common problem and describe the same underlying systems (*see* II.B.1).

'385 Claims	Bases for Invalidity
1, 11, 18	Anticipated or obvious in view of Prior Art Motorola Devices, Prior Art Nokia Devices, US 6,104,707, US 6,396,392, US 5,170,173, US 6,346,913, US 6,177,872, US 5,877,667, US 6,414,562, US 5,874,926, WO 199804098, US 6,121,940, US 5,281,932, US 5,565,881, US 5,589,844, US 6,100,773, US 6,219,532, US 5,559,377, US 5,818,127, US 6,026,286, US 2,687,513, US 6,188,364, US 5,778,308.
1, 11, 18	Invalid for obviousness type double patenting in view of U.S. Patent No. 6,104,707 in combination with common knowledge of one of ordinary skill as demonstrated (at least) in the prior art discussed above in § II.B.1.c(1) and/or one of (1) Prior Art Motorola Devices, Prior Art Nokia Devices, Prior Art Ericsson Devices, Prior Art Samsung Devices, Prior Art Qualcomm Devices, US 6,396,392, US 5,170,173, US 6,346,913, US 6,177,872, US 5,877,667, US 6,414,562, US 5,874,926, WO 199804098, US 6,121,940,

'385 Claims	Bases for Invalidity
	US 5,281,932, US 5,565,881, US 5,589,844, US 6,100,773, US 6,219,532, US 5,559,377, US 5,818,127, US 6,026,286, US 2,687,513, US 6,188,364, US 5,778,308; and/or one of (2) US 5,467,098, US 4,785,345, US 6,486,765, US 5,969,590, US 5,420,558, US 6,396,362, US 6,396,363; and/or one of (3) US 6,177,872, US 5,877,667.
1,11, 18	Obvious in view of US 5,778,308 in combination with common knowledge of one of ordinary skill as demonstrated (at least) in the prior art discussed above in § II.B.1.c(1) and/or one of (1) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, WO 199804098, US 5,281,932, US 5,565,881, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 5,559,377, US 6,396,362, US 5,818,127, US 6,026,286, US 6,396,363, US 2,687,513, US 6,188,364; and/or one of (2) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, US 6,414,562, US 5,874,926, US 6,121,940, US 5,281,932, US 5,565,881, US 5,589,844, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 6,219,532, US 6,396,362, US 6,026,286, US 6,396,363, US 6,188,364, US 5,778,308; and/or one of (3) US 6,177,872, US 5,467,098, US 4,785,345, US 5,281,932, US 6,100,773, US 5,969,590, US 5,420,558, US 6,396,362, US 6,026,286, US 6,396,363, US 6,188,364
1,11, 18	Obvious in view of US 6,188,364 in combination with common knowledge of one of ordinary skill as demonstrated (at least) in the prior art discussed above in § II.B.1.c(1) and/or one of (1) Prior Art Motorola Devices, Prior Art Nokia Devices, Prior Art Ericsson Devices, Prior Art Samsung Devices, Prior Art Qualcomm Devices, US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, US 6,414,562, US 5,874,926, WO 199804098, US 6,121,940, US 5,281,932, US 5,565,881, US 5,589,844, US 6,100,773, US 5,420,558, US 6,219,532, US 5,559,377, US 6,396,362, US 5,818,127, US 6,026,286, US 6,396,363, US 2,687,513, US 5,778,308; and/or one of (2) US 6,486,765, US 5,969,590, US 6,188,364
1,11, 18	Obvious in view of US 2,687,513 in combination with common knowledge of one of ordinary skill as demonstrated (at least) in the prior art discussed above in § II.B.1.c(1) and/or one of (1) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, US 6,414,562, US 5,874,926, US 6,121,940, US 5,281,932, US 5,565,881, US 5,589,844, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 6,219,532, US 6,396,362, US 6,026,286, US 6,396,363, US 6,188,364, US 5,778,308
1,11, 18	Obvious in view of US 6,026,286 in combination with common knowledge of one of ordinary skill as demonstrated (at least) in the prior art discussed above in § II.B.1.c(1) and/or one of (1) Prior Art Motorola Devices, Prior Art Nokia Devices, Prior Art Ericsson Devices, Prior Art Samsung Devices, Prior Art Qualcomm Devices, US 6,177,872, US 5,467,098, US 6,414,562, US 5,874,926, US 6,121,940, US 5,565,881, US 5,589,844, US 6,100,773, US 6,486,765, US 6,219,532, US 6,396,363, US 2,687,513, US 6,188,364, US 5,778,308; and/or one of (2) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, US 6,414,562, US 5,874,926, US 6,121,940, US 5,281,932, US 5,565,881, US 5,589,844, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 6,219,532, US 6,396,362, US 6,026,286, US 6,396,363, US 6,188,364, US 5,778,308
1,11, 18	Obvious in view of US 5,818,127 in combination with common knowledge of one of ordinary skill as demonstrated (at least) in the prior art discussed above in § II.B.1.c(1) and/or one of (1) Prior Art Motorola Devices, Prior Art Nokia Devices, Prior Art Ericsson Devices, Prior Art Samsung Devices, Prior Art Qualcomm Devices, US 6,177,872, US 5,467,098, US 6,414,562, US 5,874,926, US 6,121,940, US 5,565,881, US 5,589,844, US 6,100,773, US 6,486,765, US 6,219,532, US 6,396,363, US 2,687,513, US 6,188,364, US 5,778,308; and/or one of (2) Prior Art Motorola Devices, Prior Art Nokia Devices, Prior Art Ericsson Devices, Prior Art Samsung Devices, Prior Art Qualcomm



'385 Claims	Bases for Invalidity
	Devices, US 6,346,913, US 6,177,872, US 5,467,098, US 6,414,562, US 5,874,926, WO 199804098, US 6,121,940, US 5,281,932, US 5,565,881, US 5,589,844, US 6,100,773; and/or one of (3) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, US 6,414,562, US 5,874,926, US 6,121,940, US 5,281,932, US 5,565,881, US 5,589,844, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 6,219,532, US 6,396,362, US 6,026,286, US 6,396,363, US 6,188,364, US 5,778,308
1,11, 18	Obvious in view of US 5,559,377 in combination with common knowledge of one of ordinary skill as demonstrated (at least) in the prior art discussed above in § II.B.1.c(1) and/or one of (1) Prior Art Motorola Devices, Prior Art Nokia Devices, Prior Art Ericsson Devices, Prior Art Samsung Devices, Prior Art Qualcomm Devices, US 6,177,872, US 5,467,098, US 6,414,562, US 5,874,926, US 6,121,940, US 5,565,881, US 5,589,844, US 6,100,773, US 6,486,765, US 6,219,532, US 6,396,363, US 2,687,513, US 6,188,364, US 5,778,308; and/or one of (2) Prior Art Motorola Devices, Prior Art Nokia Devices, Prior Art Ericsson Devices, Prior Art Samsung Devices, Prior Art Qualcomm Devices, US 6,346,913, US 6,177,872, US 5,467,098, US 6,414,562, US 5,874,926, WO 199804098, US 6,121,940, US 5,281,932, US 5,565,881, US 5,589,844, US 6,100,773; and/or one of (3) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, US 6,414,562, US 5,874,926, US 6,121,940, US 5,281,932, US 5,565,881, US 5,589,844, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 6,219,532, US 6,396,362, US 6,026,286, US 6,396,363, US 6,188,364, US 5,778,308
1,11, 18	Obvious in view of US 6,219,532 in combination with common knowledge of one of ordinary skill as demonstrated (at least) in the prior art discussed above in § II.B.1.c(1) and/or one of (1) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, WO 199804098, US 5,281,932, US 5,565,881, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 5,559,377, US 6,396,362, US 5,818,127, US 6,026,286, US 6,396,363, US 2,687,513, US 6,188,364; and/or one of (2) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, US 6,414,562, US 5,874,926, US 6,121,940, US 5,281,932, US 5,565,881, US 5,589,844, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 6,396,362, US 6,026,286, US 6,396,363, US 6,188,364, US 5,778,308
1,11, 18	Obvious in view of US 6,100,773 in combination with common knowledge of one of ordinary skill as demonstrated (at least) in the prior art discussed above in § II.B.1.c(1) and/or one of (1) Prior Art Motorola Devices, Prior Art Nokia Devices, Prior Art Ericsson Devices, Prior Art Samsung Devices, Prior Art Qualcomm Devices, US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, US 6,414,562, US 5,874,926, WO 199804098, US 6,121,940, US 5,281,932, US 5,565,881, US 5,589,844, US 6,100,773, US 5,420,558, US 6,219,532, US 5,559,377, US 6,396,362, US 5,818,127, US 6,026,286, US 6,396,363, US 2,687,513, US 6,188,364, US 5,778,308; and/or one of (2) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, US 6,414,562, US 5,874,926, US 6,121,940, US 5,281,932, US 5,565,881, US 5,589,844, US 6,486,765, US 5,969,590, US 5,420,558, US 6,219,532, US 6,396,362, US 6,026,286, US 6,396,363, US 6,188,364, US 5,778,308
1,11, 18	Obvious in view of US 5,589,844 in combination with common knowledge of one of ordinary skill as demonstrated (at least) in the prior art discussed above in § II.B.1.c(1) and/or one of (1) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, WO 199804098, US 5,281,932, US 5,565,881, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 5,559,377, US 6,396,362, US 5,818,127, US 6,026,286, US 6,396,363, US 2,687,513, US 6,188,364; and/or one of (2) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, US 6,414,562, US 5,874,926, US

'385 Claims	Bases for Invalidity
	6,121,940, US 5,281,932, US 5,565,881, US 5,589,844, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 6,219,532, US 6,396,362, US 6,026,286, US 6,396,363, US 6,188,364, US 5,778,308
1,11, 18	Obvious in view of US 5,565,881 in combination with common knowledge of one of ordinary skill as demonstrated (at least) in the prior art discussed above in § II.B.1.c(1) and/or one of (1) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, US 6,414,562, US 5,874,926, US 6,121,940, US 5,281,932, US 5,589,844, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 6,219,532, US 6,396,362, US 6,026,286, US 6,396,363, US 6,188,364, US 5,778,308
1,11, 18	Obvious in view of US 5,281,932 in combination with common knowledge of one of ordinary skill as demonstrated (at least) in the prior art discussed above in § II.B.1.c(1) and/or one of (1) Prior Art Motorola Devices, Prior Art Nokia Devices, Prior Art Ericsson Devices, Prior Art Samsung Devices, Prior Art Qualcomm Devices, US 6,177,872, US 5,467,098, US 6,414,562, US 5,874,926, US 6,121,940, US 5,565,881, US 5,589,844, US 6,100,773, US 6,486,765, US 6,219,532, US 6,396,363, US 2,687,513, US 6,188,364, US 5,778,308
1,11, 18	Obvious in view of US 6,121,940 in combination with common knowledge of one of ordinary skill as demonstrated (at least) in the prior art discussed above in § II.B.1.c(1) and/or one of (1) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, WO 199804098, US 5,281,932, US 5,565,881, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 5,559,377, US 6,396,362, US 5,818,127, US 6,026,286, US 6,396,363, US 2,687,513, US 6,188,364; and/or one of (2) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, US 6,414,562, US 5,874,926, US 5,281,932, US 5,565,881, US 5,589,844, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 6,219,532, US 6,396,362, US 6,026,286, US 6,396,363, US 6,188,364, US 5,778,308
1,11, 18	Obvious in view of WO 1998040980 in combination with common knowledge of one of ordinary skill as demonstrated (at least) in the prior art discussed above in § II.B.1.c(1) and/or one of (1) Prior Art Motorola Devices, Prior Art Nokia Devices, Prior Art Ericsson Devices, Prior Art Samsung Devices, Prior Art Qualcomm Devices, US 6,177,872, US 5,467,098, US 6,414,562, US 5,874,926, US 6,121,940, US 5,565,881, US 5,589,844, US 6,100,773, US 6,486,765, US 6,219,532, US 6,396,363, US 2,687,513, US 6,188,364, US 5,778,308; and/or one of (2) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, US 6,414,562, US 5,874,926, US 6,121,940, US 5,281,932, US 5,565,881, US 5,589,844, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 6,219,532, US 6,396,362, US 6,026,286, US 6,396,363, US 6,188,364, US 5,778,308
1,11, 18	Obvious in view of US 5,874,926 in combination with common knowledge of one of ordinary skill as demonstrated (at least) in the prior art discussed above in § II.B.1.c(1) and/or one of (1) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, WO 199804098, US 5,281,932, US 5,565,881, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 5,559,377, US 6,396,362, US 5,818,127, US 6,026,286, US 6,396,363, US 2,687,513, US 6,188,364; and/or one of (2) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, US 6,414,562, US 5,874,926, US 6,121,940, US 5,281,932, US 5,565,881, US 5,589,844, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 6,219,532, US 6,396,362, US 6,026,286, US 6,396,363, US 6,188,364, US 5,778,308
1,11, 18	Obvious in view of US 6,414,562 in combination with common knowledge of one of ordinary skill as demonstrated (at least) in the prior art discussed above in § II.B.1.c(1) and/or one of (1) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US



'385 Claims	Bases for Invalidity
	4,785,345, WO 199804098, US 5,281,932, US 5,565,881, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 5,559,377, US 6,396,362, US 5,818,127, US 6,026,286, US 6,396,363, US 2,687,513, US 6,188,364; and/or one of (2) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, US 6,414,562, US 5,874,926, US 6,121,940, US 5,281,932, US 5,565,881, US 5,589,844, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 6,219,532, US 6,396,362, US 6,026,286, US 6,396,363, US 6,188,364, US 5,778,308
1,11, 18	Obvious in view of US 5,877,667 in combination with common knowledge of one of ordinary skill as demonstrated (at least) in the prior art discussed above in § II.B.1.c(1) and/or one of (1) Prior Art Motorola Devices, Prior Art Nokia Devices, Prior Art Ericsson Devices, Prior Art Samsung Devices, Prior Art Qualcomm Devices, US 6,177,872, US 5,467,098, US 6,414,562, US 5,874,926, US 6,121,940, US 5,565,881, US 5,589,844, US 6,100,773, US 6,486,765, US 6,219,532, US 6,396,363, US 2,687,513, US 6,188,364, US 5,778,308; and/or one of (2) Prior Art Motorola Devices, Prior Art Nokia Devices, Prior Art Ericsson Devices, Prior Art Samsung Devices, Prior Art Qualcomm Devices, US 6,346,913, US 6,177,872, US 5,467,098, US 6,414,562, US 5,874,926, WO 199804098, US 6,121,940, US 5,281,932, US 5,565,881, US 5,589,844, US 6,100,773; and/or one of (3) US 6,177,872, US 5,467,098, US 4,785,345, US 5,281,932, US 6,100,773, US 5,969,590, US 5,420,558, US 6,396,362, US 6,026,286, US 6,396,363, US 6,188,364
1,11, 18	Obvious in view of US 6,177,872 in combination with common knowledge of one of ordinary skill as demonstrated (at least) in the prior art discussed above in § II.B.1.c(1) and/or one of (1) Prior Art Motorola Devices, Prior Art Nokia Devices, Prior Art Ericsson Devices, Prior Art Samsung Devices, Prior Art Qualcomm Devices, US 6,346,913, US 5,467,098, US 6,414,562, US 5,874,926, WO 199804098, US 6,121,940, US 5,281,932, US 5,565,881, US 5,589,844, US 6,100,773; and/or one of (2) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, US 6,414,562, US 5,874,926, US 6,121,940, US 5,281,932, US 5,565,881, US 5,589,844, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 6,219,532, US 6,396,362, US 6,026,286, US 6,396,363, US 6,188,364, US 5,778,308
1,11, 18	Obvious in view of US 6,346,913 in combination with common knowledge of one of ordinary skill as demonstrated (at least) in the prior art discussed above in § II.B.1.c(1) and/or one of (1) Prior Art Motorola Devices, Prior Art Nokia Devices, Prior Art Ericsson Devices, Prior Art Samsung Devices, Prior Art Qualcomm Devices, US 6,177,872, US 5,467,098, US 6,414,562, US 5,874,926, US 6,121,940, US 5,565,881, US 5,589,844, US 6,100,773, US 6,486,765, US 6,219,532, US 6,396,363, US 2,687,513, US 6,188,364, US 5,778,308; and/or one of (2) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, US 6,414,562, US 5,874,926, US 6,121,940, US 5,281,932, US 5,565,881, US 5,589,844, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 6,219,532, US 6,396,362, US 6,026,286, US 6,396,363, US 6,188,364, US 5,778,308
1,11, 18	Obvious in view of US 5,170,173 in combination with common knowledge of one of ordinary skill as demonstrated (at least) in the prior art discussed above in § II.B.1.c(1) and/or one of (1) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, US 6,414,562, US 5,874,926, US 6,121,940, US 5,281,932, US 5,565,881, US 5,589,844, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 6,219,532, US 6,396,362, US 6,026,286, US 6,396,363, US 6,188,364, US 5,778,308, Prior Art Motorola Devices, Prior Art Nokia Devices
1,11, 18	Obvious in view of each of the Prior Art Motorola Devices in combination with common knowledge of one of ordinary skill as demonstrated (at least) in the prior art discussed

'385 Claims	Bases for Invalidity
	above in § II.B.1.c(1) and/or one of (1) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, WO 199804098, US 5,281,932, US 5,565,881, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 5,559,377, US 6,396,362, US 5,818,127, US 6,026,286, US 6,396,363, US 2,687,513, US 6,188,364; and/or one of (2) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, US 6,414,562, US 5,874,926, US 6,121,940, US 5,281,932, US 5,565,881, US 5,589,844, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 6,219,532, US 6,396,362, US 6,026,286, US 6,396,363, US 6,188,364, US 5,778,308
1,11, 18	Obvious in view of each of the Prior Art Nokia Devices in combination with common knowledge of one of ordinary skill as demonstrated (at least) in the prior art discussed above in § II.B.1.c(1) and/or one of (1) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, WO 199804098, US 5,281,932, US 5,565,881, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 5,559,377, US 6,396,362, US 5,818,127, US 6,026,286, US 6,396,363, US 2,687,513, US 6,188,364; and/or one of (2) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, US 6,414,562, US 5,874,926, US 6,121,940, US 5,281,932, US 5,565,881, US 5,589,844, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 6,219,532, US 6,396,362, US 6,026,286, US 6,396,363, US 6,188,364, US 5,778,308
1,11, 18	Obvious in view of each of the Prior Art Samsung Devices in combination with common knowledge of one of ordinary skill as demonstrated (at least) in the prior art discussed above in § II.B.1.c(1) and/or one of (1) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, WO 199804098, US 5,281,932, US 5,565,881, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 5,559,377, US 6,396,362, US 5,818,127, US 6,026,286, US 6,396,363, US 2,687,513, US 6,188,364; and/or one of (2) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, US 6,414,562, US 5,874,926, US 6,121,940, US 5,281,932, US 5,565,881, US 5,589,844, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 6,219,532, US 6,396,362, US 6,026,286, US 6,396,363, US 6,188,364, US 5,778,308
1,11, 18	Obvious in view of each of the Prior Art Ericsson Devices in combination with common knowledge of one of ordinary skill as demonstrated (at least) in the prior art discussed above in § II.B.1.c(1) and/or one of (1) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, WO 199804098, US 5,281,932, US 5,565,881, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 5,559,377, US 6,396,362, US 5,818,127, US 6,026,286, US 6,396,363, US 2,687,513, US 6,188,364; and/or one of (2) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, US 6,414,562, US 5,874,926, US 6,121,940, US 5,281,932, US 5,565,881, US 5,589,844, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 6,219,532, US 6,396,362, US 6,026,286, US 6,396,363, US 6,188,364, US 5,778,308
1,11, 18	Obvious in view of each of the Prior Art Qualcomm Devices in combination with common knowledge of one of ordinary skill as demonstrated (at least) in the prior art discussed above in § II.B.1.c(1) and/or one of (1) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, WO 199804098, US 5,281,932, US 5,565,881, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 5,559,377, US 6,396,362, US 5,818,127, US 6,026,286, US 6,396,363, US 2,687,513, US 6,188,364; and/or one of (2) US 6,346,913, US 6,177,872, US 5,467,098, US 5,877,667, US 4,785,345, US 6,414,562, US 5,874,926, US 6,121,940, US 5,281,932, US 5,565,881, US 5,589,844, US 6,100,773, US 6,486,765, US 5,969,590, US 5,420,558, US 6,219,532, US 6,396,362, US 6,026,286, US 6,396,363, US 6,188,364, US 5,778,308

**C. Claim Charts**

Subject to Samsung's reservation of rights, attached hereto as **Appendices A** and incorporated by reference are claim charts providing a limitation-by-limitation analysis of where specifically, in each prior art item, each limitation of the Asserted Claims of the Asserted Patent is found. Any reference to a figure in cited text incorporates by reference the figure itself, and any citation to a figure incorporates by reference any description of that figure in a reference. As noted above, these claim charts are based on Samsung's understanding of the claim constructions expressly applied by Plaintiff or necessary to Plaintiff's contentions, even though Samsung does not necessarily agree with those constructions, and reserves the right to dispute them. If any limitation is deemed not to be met exactly by an item of prior art, Samsung contends that the difference would have been obvious to a person of ordinary skill in the art and within the knowledge of one skilled in the art at the time of the alleged invention, so that the claimed invention would have been obvious both in light of the single reference alone or in light of combined references. Samsung does not admit or concede that the limitation is not expressly or inherently disclosed by the reference at issue.

As a general matter, all portions of each prior art item are relied upon to support the disclosure of each patent claim limitation, as all portions provide general support. Supporting citations are nevertheless provided, but do not necessarily represent every location where a particular claim term may be found in the prior art item. Samsung reserves the right to rely on additional, or different, portions of the prior art items other than those specifically cited in these claims charts, and to supplement and/or amend these charts.

**D. Invalidity Under 35 U.S.C. § 101 and 35 U.S.C. § 112**

Subject to Samsung's reservation of rights, Samsung identifies below the grounds upon

which Samsung currently contends that the Asserted Claims are invalid under 35 U.S.C. § 101 (pre-AIA) and 35 U.S.C. § 112 (pre-AIA). The disclosures below do not attempt to identify all recitations of a given term or phrase in each claim. Where Samsung has identified an instance of a term or limitation in a particular claim that renders the claim invalid under Sections 101 or 112, Samsung contends that every instance of the challenged term or limitation in the claim renders the claim invalid for the same reasons.

The following contentions are subject to revision and amendment under Federal Rule of Civil Procedure 26(e) and the Orders of record in this matter where appropriate in light of further investigation and discovery regarding the defenses below, the Court's construction of the claims at issue, or the review and analysis by expert witnesses.

**1. Invalidity Under 35 U.S.C. § 101 for Claiming an Abstract Idea and Lacking Utility**

Samsung contends that the Asserted Claims of the Asserted Patent identified below are invalid because they fail to claim patent-eligible subject matter eligible under 35 U.S.C. § 101 (pre-AIA). Samsung reserves the right to supplement, amend, or modify these Section 101 invalidity contentions as discovery progresses and its rights to advance other and different arguments regarding invalidity of the Asserted Patent or to pursue relief in the form of dispositive motions directed to other or different claims of the Asserted Patent.

The Asserted Claims are invalid because they fail to claim subject matter eligible for patenting under 35 U.S.C. § 101 (pre-AIA). Whether an invention is eligible for patent protection under Section 101 is a "threshold test." *See Bilski v. Kappos*, 561 U.S. 593, 602 (2010). Under this "threshold test," the Court "must first determine whether the claims at issue are directed to a patent-ineligible concept," such as an abstract idea. *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 573 U.S. 208, 218 (2014). If so, the Court must then "consider the limitations of each claim both

individually and ‘as an ordered combination’ to determine whether the additional limitations ‘transform the nature of the claim’ into a patent-eligible application.” *See id.* (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 73 (2012)).

In *Alice*, the Supreme Court set forth a two-part test to analyze patent eligibility: (1) determine whether the claims are directed to an abstract idea or other patent-ineligible concept, and (2) if so, determine whether the claim amounts to “significantly more” than the abstract idea. If the claim does not recite “significantly more” than the abstract idea, it is invalid. *Id.* at 2355.

Section 101 also requires that a claimed invention be useful. “[W]hen an impossible limitation, such as a nonsensical method of operation, is clearly embodied within the claim, the claimed invention must be held invalid.” *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1358–59 (Fed. Cir. 1999). “[I]nventions fail to meet the utility requirement if their ‘asserted uses represent merely hypothetical possibilities, objectives which the claimed [inventions] ... could possibly achieve, but none for which they have been used in the real world[.]’” *In re ’318 Patent Infringement Litig.*, 583 F.3d 1317, 1324 (Fed. Cir. 2009) (quoting *In re Fisher*, 421 F.3d 1365, 1373 (Fed. Cir. 2005)). “When a claim itself recites incorrect science in one limitation, the entire claim is invalid, regardless of the combinations of the other limitations recited in the claim.” *EMI Grp. N. Am., Inc. v. Cypress Semiconductor Corp.*, 268 F.3d 1342, 1349 (Fed. Cir. 2001)

**a. The ’385 Patent Is Invalid for Claiming an Abstract Idea without an Inventive Concept**

The claims of the ’385 Patent are invalid under 35 U.S.C. § 101 (pre-AIA) because they are directed to an abstract idea and do not add an inventive concept.



The claims of the '385 Patent are directed to the abstract idea of impedance matching.<sup>2</sup> *See, e.g.*, 385 Patent, 1:6-10 (“The present invention relates generally to a coupler for wireless communication, and more particularly to the use of a novel air-core or dielectric core coupler as a matching device to the characteristic impedance of the air for a transmitter and receiver for wireless communications.”). Stripped of standard components of an RF transmission system – the transmitter and coupler – the focus of claim 1 is the limitation that recites a “coupler matching the output impedance of the transmitter to the characteristic impedance of the air.” ’385 Patent, 6:40-42. This merely claims the result of impedance matching to air, not how to achieve it. *See Affinity Labs of Tex., LLC v. DirecTV, LLC*, 838 F.3d 1253, 1258 (Fed. Cir. 2016) (“There is nothing in claim 1 that is directed to how to implement out-of-region broadcasting on a cellular telephone. Rather, the claim is drawn to the idea itself.”). The patent does not disclose, let alone claim, how to measure or match the characteristic impedance of air. Nevertheless, during prosecution the inventor argued, without explanation, that “[t]he coupler in the present invention matches [impedances] automatically.” Office Action Response at 5 (June 18, 2003) (emphasis in original). This is just the idea of impedance matching, not a concrete invention of a particular device that performs impedance matching. Moreover, as Satius apparently reads the claims onto the Accused Products, the '385 Patent effectively preempts the entire field of impedance matching in wireless RF devices because, according to Satius, claim 1 also encompasses matching to the impedance of an antenna. The only constraint is, at most, that a non-magnetic material be used in the impedance matching transformer, which, as discussed below, is a routine and conventional component of impedance matching circuits and not a

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<sup>2</sup> In accordance with the Court’s Scheduling Order and applicable rules, Samsung reserves the right to amend its description of the abstract idea of the Asserted Claims based on further investigation, analysis, and discovery, Samsung’s consultation with experts and others, and contentions or court rulings on relevant issues such as claim construction and priority dates.



meaningful restriction on impedance matching. This is particularly true in light of Satius's contentions that a capacitor in the impedance matching circuit can satisfy the coupler limitation because it was routine and conventional for these capacitors to be designed with non-magnetic cores.

The asserted dependent claims are directed to the same abstract idea as claim 1. Claim 11 merely claims a transformer that comprises two conductive plates spaced apart from each, where the first conductive plate is "matched to the characteristic impedance of the air at a preselected frequency." '385 Patent, 7:7-15. Again, this merely claims the idea of matching to the impedance of air at a preselected frequency using conductive plates. Similarly, asserted dependent claim 18 claims forming the conductive plates in the chip by "deposition of metal layers onto the chip." '385 Patent, 7:38-41. This merely claims the idea of how to form the conductive plates. Thus, both of these claims concern the same abstract idea as claim 1.

The Asserted Claims of the '385 Patent do not add an inventive concept, either in their individual limitations or as ordered combinations. The Asserted Claims do not add significantly more to the abstract idea of impedance matching. Instead, the patent uses routine techniques and conventional components to implement impedance matching. Impedance matching the output impedance of a transmitter to the characteristic impedance of a transmission medium or the input impedance of another circuit at its output was a routine, conventional technique in the field of wired and wireless RF communications for decades before the '385 Patent was filed. *See, e.g.*, U.S. Patent No. 2,687,513, 1:1-44 ("A typical use for which the present invention is adapted is found in radio transmitter stations and the like, where impedance matching between a transmitter output circuit and an antenna input circuit is desired. Where high power must be handled at radio frequencies, such impedance transformation can be done most effectively and economically by

air-core transformer means.”); U.S. Patent No. 3,349,397, 2:51-3:11 (disclosing the use of sheet materials with a resistivity of 377 ohms per square “to match the impedance of free space so that no reflection is obtained” at the interface with free space); U.S. Patent 6,177,872, 1:15-23 (“In order to reduce reflections, improve signal quality, and supply the greatest power from a source to a load, the impedance ‘looking into the load’ from *the source should match the output impedance of the source*. Additionally, since a mismatched line has different properties at different frequencies, *a mismatched circuit is generally unsuitable for broadband or multi-frequency use*. Consequently, relatively broadband circuit applications are *particularly needful of impedance matching circuits*.”) (emphasis added).

Moreover, the ’385 Patent admits that the preferred embodiment for its air-core transformer was disclosed in the inventor’s co-pending application that issued as U.S. Patent No. 6,104,707. *See* ’385 Patent, 2:54-56. During prosecution of the ’385 Patent, the inventor admitted that “the coupler in the ’707 patent can, in fact, be used in the present invention **without any modification**.” Office Action Response at 5 (June 18, 2003) (emphasis added). The coupler disclosed in the ’707 Patent was disclosed in multiple references published more than one year before the filing date of the ’385 Patent, including references that shared substantially the same specification as the ’707 Patent. *See, e.g.*, WO1998/409890 at 15:15-27 (published Sept. 17, 1998); U.S. Patent No. 5,559,377 at Fig. 9A-C, 8:46-11:67.

It was routine and conventional by the time the ’385 Patent was filed to use air-core transformers in impedance matching circuits. *See, e.g.*, U.S. Patent No. 2,687,513, 1:1-44. It was likewise conventional to use impedance matching circuits comprised of a switched bank of capacitors, each having (non-magnetic) dielectrics between the conductive plates. *See, e.g.*, U.S. Patent No. 4,201,960 at 1:58-2:6 (“[A]ccording to the invention, the method of matching the

nominal real impedance of a transmitter to an antenna .... A provided variable shunt capacitance is coupled to a predetermined one of the first and second terminals.”). The “vague, functional description[]” of dependent claims 11 and 18 are “insufficient to transform the abstract idea into a patent-eligible invention.” *In re TLI Commc’ns LLC Patent Litig.*, 823 F.3d 607, 615 (Fed. Cir. 2016).

**b. The ’385 Patent is Invalid for Lack of Utility**

The claims of the ’385 Patent are also invalid under 35 U.S.C. § 101 (pre-AIA) because they lack utility.

First, the Asserted Claims lack utility because they require the transmitter to transmit electric signals and a transformer communicating these electric signals to the air. A person of ordinary skill would understand that electric signals cannot be transmitted or communicated to the air at any useful distance because it would require an exorbitant energy source to overcome the breakdown voltage air, which is not practical in any commercial device, let alone those described and claimed by the ’385 Patent. And even if electrical signals could be transmitted over the air, it is unclear how a receiver receives and demodulates an electric signal sent over the air. A person of skill would also understand that there would be no utility in matching the impedance of an electrical signal to the impedance of air because they are fundamentally different physical concepts. Instead, a person of skill would understand that in the context of the ’385 Patent, only electromagnetic signals can be transmitted or communicated to the air.

Second, the Asserted Claims lack utility because they require matching the output impedance of the transmitter to the characteristic impedance of the air. A person of ordinary skill would understand that the output impedance of a transmitter and the characteristic impedance of air are different physical properties and, therefore, cannot be matched to each other. Moreover, a person of ordinary skill would understand that, at least when transmitting signals to the air via an

antenna, matching to the characteristic impedance of the air, instead of the input impedance of the antenna, would have no utility and likely lead to significant power losses because of the differences between the input impedance of an antenna (typically designed to be 50  $\Omega$ ) and the characteristic impedance of air ( $\sim 377 \Omega$ ). *See, e.g.*, U.S. Patent No. 5,400,041, 1:29-32 (“In the case of a microwave antenna, it is necessary to match the input impedance of the antenna to that of the antenna feed line, in order to maximize power transfer from the feed line to the antenna.”).

If there were not significant power loss at the transmitter-to-load interface it would only be because the impedance of the load (e.g., an antenna) incidentally happens to match, or be very close to, the characteristic impedance of the air. That is, the impedance matching would be entirely circumstantial and indirect, and not the result of the coupler intentionally designed to match the characteristic impedance of air. As a result, a person of ordinary skill would understand that this matching limitation has no identifiable benefit to the art and, therefore, lacks utility under Section 101.

## **2. Disclosure of Invalidity Under 35 U.S.C. § 112(1) for Lack of Enablement and Written Description**

As detailed below, asserted claims of the Asserted Patent lack enablement and lack sufficient written description support under 35 U.S.C. § 112, ¶ 1 (pre-AIA).

Section 112, ¶ 1 (pre-AIA) requires that the specification contain a written description of the invention. “[T]he hallmark of written description is disclosure.” *Boston Scientific Corp. v. Johnson & Johnson*, 647 F.3d 1353, 1361-62 (Fed. Cir. 2011) (citation omitted). The test for whether a specification adequately describes an invention is “whether the disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date.... [T]he test requires an objective inquiry into the four corners of the specification from the perspective of a person of ordinary

skill in the art.... [It] is a question of fact.” *Ariad Pharms., Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc); *Boston Scientific*, 647 F.3d at 1362.

Section 112, ¶ 1 (pre-AIA) also requires that the patent specification enable “those skilled in the art to make and use the full scope of the claimed invention without ‘undue experimentation.’” *Genentech, Inc. v. Novo Nordisk A/S*, 108 F.3d 1361, 1365 (Fed. Cir. 1997) (quoting *In re Wright*, 999 F.2d 1557, 1561 (Fed. Cir. 1993)). “[T]he scope of the claims must be less than or equal to the scope of the enablement.” *Nat’l Recovery Tech., Inc. v. Magnetic Separation Sys., Inc.*, 166 F.3d 1190, 1196 (Fed. Cir. 1999).

Subject to Samsung’s reservation of rights, Samsung identifies the following written description and enablement grounds with respect to the following Asserted Claims. The following does not purport to list every claim subject to the foregoing disclosed grounds. Where a particular claim term or limitation is identified, Samsung contends that the identified term or limitation, as well as the surrounding claim language in context as recited in the applicable claim, suffer from the identified Section 112 defect. Furthermore, where a particular claim term or limitation is identified with respect to one or more particular claims, Samsung contends that each other Asserted Claim in the Asserted Patent that recites the same claim term or limitation is subject to the same Section 112 defect. Samsung also reserves the right to assert additional Section 112 defenses as discovery progresses.

**a. Lack of Enablement/Written Description in the ’385 Patent**

The Asserted Claims of the ’385 Patent fail to meet the requirements of 35 U.S.C. § 112, ¶ 1 (pre-AIA) because the specification of the ’385 Patent does not contain a written description of the alleged invention and does not enable a person skilled in the art to make and use the alleged invention. In particular, the following limitations of the Asserted Claims are not enabled or lack written description support:

**(1) “transmitting the electric or electromagnetic signals at a preselected frequency” (Claim 1)**

As explained below, this limitation is indefinite. *See* § II.D.3.a. To the extent that this limitation can be construed, it lacks written description support and is not enabled under 35 U.S.C. § 112, ¶ 1 (pre-AIA). This term is not a term of art and has not been adequately described in the specification; the term has not been described with sufficient particularity such that one skilled in the art would recognize that the inventor had possession of an invention that could transmit electric signals over the air.

A person of skill would also not understand the '385 Patent to enable a device that transmits electric signals over the air without undue experimentation. “[R]adio communication is carried on by means of electromagnetic waves,” not electric signals. *See* Straw, THE ARRL ANTENNA BOOK 23-1 (18th ed. 1997). Transmitting electric signals over the air would require power sources and transmission equipment that are not described, suggested, or taught by the '385 Patent and were not otherwise known to be available for use in wireless RF communications. *See, e.g.*, '385 Patent, 1:6-10 (“The present invention relates generally to a coupler for wireless communications ...”). For example, air is an insulator to electric signals up to a breakdown voltage of approximately  $3 \times 10^6$  V/m. There is no disclosure in the '385 Patent about how to achieve this extremely high voltage or how a transmitter disclosed in the '385 Patent could be used to transmit signals at this voltage. And even if electrical signals could be transmitted over the air, it is unclear how to generate, modulate, and communicate electric signals over the air so that a receiver can receive and demodulate an electric signal sent over the air.

The direction given by the inventor about how to transmit electric signals through the air is, effectively, non-existent. The '385 Patent only mentions transmitting electric signals over the

air in the summary of the invention, which, in turn, is mimicked by the language of the independent claims. *See* '385 Patent, 1:59-62. There is no further discussion of transmitting electric signals in the "Detailed Description of the Invention," let alone an enabling disclosure for how to transmit electric signals over the air. There is no evidence of any working examples of a device that can transmit electric signals over the air. The '385 Patent does not identify any prior art that would enable a person of skill to transmit electric signals over the air. A person of skill would not understand transmitting electric signals over the air to be predictable because, unlike electromagnetic signals, it would unclear how to transmit electric signals over the air in the manner claimed by the '385 Patent, and, in particular, to modulate an electric signal over the air to convey information for use in wireless communications. Nor would it be clear to a person of skill how electric signals could be directed to mobile receivers, let alone receivers that are any meaningful distance from the claimed transmitter. Even if it were possible to transmit electric signals over the air using the transformer described in the '385 patent, it would require undue experimentation by a person of skill because of the difficulty then and to this day in transmitting electric signals over the air; transmitting electric signals over the air to convey information in wireless communication is an even harder, less certain problem than the already difficult problem of merely transmitting electric signals over the air using a transmitter. There is no disclosure of how to make and use a device that can transmit electric signals in any of the wireless communication systems known in the field when the '385 Patent was filed (e.g., a CDMA-based system). *See* '385 Patent, 1:23-25.

There is similarly no written description support for transmitting electric or electromagnetic signals "a preselected frequency" that evidences that the inventor was in possession of an invention that included a transmitter that could transmit electric or

electromagnetic signals at a preselected frequency. The only time “preselected” appears in the written description is in language that mimics the claim language, which does not demonstrate that the inventor actually possessed this aspect of his invention.

**(2) “transformer communicating the electric or electromagnetic signals to the air” (Claim 1)**

As explained below, this limitation is indefinite. *See* § II.D.3.a. To the extent that this limitation can be construed, it lacks written description support and is not enabled under 35 U.S.C. § 112, ¶ 1 (pre-AIA). This term is not a term of art and has not been adequately described in the specification; the term has not been described with sufficient particularity such that one skilled in the art would recognize that the inventors had possession of an invention of a transformer that could communicate electric signals to the air, for the reasons explained above and further below. Second, for the reasons described above with respect to transmitting electric signals over the air, a person of skill would recognize that undue experimentation would be required to communicate electric signals to the air. A person of ordinary skill would also not understand the inventor to be in possession of a transformer that could communicate electric or electromagnetic signals to the air. First, a person of skill understands that a transformer typically does not, and, in general cannot, communicate signals to the air; it is not the typical function of a transformer to communicate signals to the air. It would take undue experimentation for a person of skill to make and use a transformer that communicate signals to the air in light of the disclosure of the '385 Patent. The '385 Patent does not teach how to make a transformer that communicates signals to the air. There is no evidence of any working examples of a transformer that can communicate signals to the air. The '385 Patent does not identify any prior art that would enable a person of skill to make and use a transformer that communicates signals over the air. A person of skill would not find it predictable to use a transformer to communicate electric



signals to the air and it would unclear how to do so in the manner claimed by the '385 Patent.

**(3) “coupler matching the output impedance of the transmitter to the characteristic impedance of the air” (Claim 1)**

As explained below, this limitation is indefinite. *See* § II.D.3.a. To the extent that this limitation can be construed, it lacks written description support and is not enabled under 35 U.S.C. § 112, ¶ 1 (pre-AIA) because a person of skill would not understand the inventor to have been in possession of an invention that could match the impedance of a transmitter to the characteristic impedance of the air, for the reasons explained above and below.

The specification of the '385 Patent does not teach how to make and use a coupler that matches the output impedance of a transmitter to the characteristic impedance of air. Indeed, the specification does not show that the inventor had possession of a coupler that matches the characteristic impedance of air, at least because, the specification misunderstands the characteristic impedance of air and what affects that impedance. Specifically, the specification claims that the characteristic impedance of air is altered by “walls and other objects [that] reflect[] back to the transmitter and receiver.” '385 Patent, 1:43-51. A person of ordinary skill would understand that reflections of wireless signals would not affect the characteristic impedance of air, which is essentially of constant value. To the extent the characteristic impedance of air differs from the characteristic impedance of a vacuum (i.e.,  $\sim 377 \Omega$ ) it would not be reflections, or anything similar, that alters the characteristic impedance of air in the vicinity of a transmitter (and any differences in impedance would be minimal and for all intents and purposes irrelevant to the design of a transmitter in an RF communication system).

Regardless, even if the '385 Patent were correct that the characteristic impedance of air changes over any meaningful extent, except in the near field (i.e., a distance of approximately a wavelength) the impedance of air is related to the relative permittivity of the atmosphere, which

is a “function of air pressure, temperature, and humidity”:

$$\epsilon_r = \left[ 1 + 10^{-6} \left( \frac{79P}{T} - \frac{11V}{T} + \frac{3.8 \times 10^5 V}{T^2} \right) \right]^2$$

Where P is the barometric pressure in millibars, T is the temperature in Kelvin, and V is the water vapor pressure in millibars. *See* David M. Pozar, MICROWAVE ENGINEERING 5 (1998). There is no disclosure in the '385 Patent about measuring any of these values, let alone using them to calculate the characteristic impedance of air and then adjusting the output impedance of the disclosed transformer to match the characteristic impedance of air. There is no disclosure of a coupler that can adjust its output impedance at all, let alone in response to the allegedly changing impedance of air due to reflections off walls and people.

During prosecution of the '385 Patent, the inventor alleged that “[t]he coupler in the present invention matches [impedances] automatically.” Office Action Response at 5 (June 18, 2003) (emphasis in original). But there is no written description in the '385 Patent that discloses automatically matching impedances; there is no evidence that the inventor was in possession of a coupler that automatically matches impedances; there is no disclosure about how to make and use the disclosed transformers to achieve automatic impedance matching with the disclosed transformer. Instead, all of the transformers disclosed in the '385 Patent “have about the same number of turns ... and are thus a 1:1 ratio.” '385 Patent, 4:16-19. A 1:1 turn ratio results in the same impedance at both sides of the transformer (i.e., it would not permit impedance matching for components that did not already have matched impedances). Thus, the specification does not demonstrate that the patentee was in possession of an invention that could match the output impedance of a transmitter to the characteristic impedance of the air or of an antenna, let alone with a coupler that does this matching automatically. Similarly, the '385 Patent does not enable a

person of skill to make a coupler that can perform impedance matching using a 1:1 ratio transformer without undue experimentation. The claims are broad, yet the specification of the '385 Patent does not provide any direction or describe any working models of a 1:1 ratio transformer that can perform the required impedance matching to the characteristic impedance of air. *See, e.g., In re Scarbrough*, 500 F.2d 560 (C.C.P.A. 1974) (finding that the claimed invention was not enabled because there was no disclosure for how “complex elements known to perform broadly recited functions in different systems would be adaptable for use in Appellant’s particular system with only a reasonable amount of experimentation” and that “an unreasonable amount of work would be required to arrive at the detailed relationships appellant says that he has solved”). It would take significant experimentation for a person of skill make a device that uses a 1:1 ratio transformer to match the output impedance of a transmitter to the characteristic impedance of air at least because, as explained above, a 1:1 ratio transformer will have the same impedance at both its *input terminals*, and its *output terminals*. Without significant direction, which is not found in the '385 Patent, a person of skill would not understand how to achieve this transformer in light of the disclosure of the '385 Patent. There is no also evidence that the inventor was ever able to achieve this device. For example, an RF transmitter (or an RF transmission line attached to the output of the transmitter) typically has an impedance of approximately 50  $\Omega$  whereas the characteristic impedance of air is approximately 377  $\Omega$ . Thus, an impedance transformation of approximately 7:1 is needed. There is no disclosure in the '385 Patent of a device that can achieve an  $\sim 7:1$  impedance matching. Similarly, the '385 Patent does not teach a person of skill how to make and use the disclosed  $\sim 1:1$  ratio transformers to achieve an  $\sim 7:1$  impedance matching. There is no teachings about how the disclosed transformers, which have a fixed turn ratio, can adjust themselves (automatically or otherwise) to vary the impedance

matching ratio between the input and output terminals of the disclosed transformer.

To the extent Satius argues that this limitation can be met by a coupler matching the output impedance of a transmitter to the impedance of the antenna, then it would contradict the patent's disclosure that the alleged invention does not use an antennas a matching device for transmitters and receivers. '385 Patent, 1:43-52. There are no teachings in the '385 Patent of a device that uses an antenna as a matching device to the characteristic impedance of air. *See, e.g., JuxtaComm-Texas Software, LLC v. Axway, Inc.*, No. 6:10CV011, 2012 WL 7637197, at \*5 (E.D. Tex. July 5, 2012) *aff'd sub nom. JuxtaComm-Texas Software, LLC v. TIBCO Software, Inc.*, 532 F. App'x 911 (Fed. Cir. 2013); *Astra Aktiebolag v. Andrx Pharms., Inc.*, 222 F.Supp.2d 423, 564 (S.D.N.Y. 2002).

Furthermore, a person of ordinary skill in the art would not understand what "characteristic impedance of air" means in the context of electrical signals. The characteristic impedance of air is an intrinsic property of air based on the relationship between the electric and magnetic fields of an electromagnetic plane wave propagating through air. An electric signal, however, is not an electromagnetic signal and electrical signals do not propagate through the air. For these reasons, a person of ordinary skill would not understand how to match the impedance of an electrical signal to the characteristic impedance of air, which is a property of electromagnetic, not electrical, signals.

**(4) "wherein the first conductive plate is matched to the characteristic impedance of the air at a preselected bandwidth" (Claim 11)**

As explained below, this limitation is indefinite. *See* § II.D.3.a. To the extent that this limitation can be construed, it lacks written description support and is not enabled under 35 U.S.C. § 112, ¶ 1 (pre-AIA). In light of the specification and the apparent scope of the claim required by Satius's infringement contentions, the term lacks sufficient written description

support. This term is not a term of art and has not been adequately described in the specification; the term has not been described with sufficient particularity such that one skilled in the art would recognize that the inventor had possession of an invention that used a conductive plate that is matched to the characteristic impedance of the air, for the reasons explained above and below.

Similarly, a person of ordinary skill in the art did not know how to make and use a “first conductive plate [that] is matched to the characteristic impedance of the air,” let alone one “matched to the characteristic impedance of the air at a preselected bandwidth,” without undue experimentation. The specification of the ’385 Patent does not provide any figures demonstrating a conductive plate matched to the characteristic impedance of air and does not explain what property of the conductive plate is matched to the characteristic impedance of air. The specification does not provide any examples of working models where a conductive plate is matched to the characteristic impedance of air. The specification also does not explain how a conductive plate’s impedance can be modified to match impedances, let alone at a preselected bandwidth. Indeed, the specification does not explain how to measure or modify the impedance of a conductive plate. The specification also does not explain how to make and use a conductive plate with an impedance that can match the characteristic impedance of air, which the patent alleges can vary significantly due to, e.g., reflections external to the device. *See, e.g.*, ’385 Patent, Fig. 1.

**(5) “wherein the first conductive plate and the second conductive plate are formed directly in a chip by deposition of metallic layers onto the chip” (Claim 18)**

As explained below, this limitation is indefinite. *See* § II.D.3.a. To the extent that this limitation can be construed, in light of the specification and the apparent scope of the claim required by Satius’s infringement contentions, this term lacks sufficient written description support. This term is not a term of art and has not been adequately described in the specification.

The term only appears in the claims and has not been described with sufficient particularity such that one skilled in the art would recognize that the inventor had possession of the claimed invention. This term is also not enabled because the specification does not inform a person of ordinary skill in the art how to form conductive plates directly in a chip by deposition of metallic layers onto the chip without undue experimentation. The patent does not disclose any figures, manufacturing steps, literature, or commercially available components that describe what is meant by this limitation or teach a person of skill how to implement this limitation. There is no disclosure of a working models of a conductive plates formed directly in a chip by deposition of metallic layers on the chip; as explained, there are no models for the conductive plate embodiment.

### **3. Disclosure of Invalidity Under 35 U.S.C. § 112(2) for Indefiniteness**

Claims are indefinite under 35 U.S.C. § 112, ¶ 2 (pre-AIA) when they “fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014). If an asserted apparatus claim includes both apparatus and method limitations, that claim is invalid for indefiniteness under § 112, ¶ 2 because it fails to identify or notify the public of what constitutes direct infringement. *See IPXL Holdings, L.L.C. v. Amazon.com, Inc.*, 430 F.3d 1377 (Fed. Cir. 2005).

Subject to Samsung’s reservation of rights, Samsung contends that the Asserted Claims discussed below are indefinite. The following does not purport to list every claim subject to the foregoing disclosed grounds. Where a particular claim term or limitation is identified, Samsung contends that the identified term or limitation, as well as the surrounding claim language in context as recited in the applicable claim, suffer from the identified Section 112 defect. Furthermore, where a particular claim term or limitation is identified with respect to one or more particular claims, Samsung contends that each other Asserted Claim in the Asserted Patent that

recites the same claim term or limitation is subject to the same Section 112 defect.

**a. Indefiniteness in the '385 Patent**

The Asserted Claims of the '385 Patent are indefinite under 35 U.S.C. § 112, ¶ 2 (pre-AIA) because the language of the claims, when read in light of the specification and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention. In particular, the following limitations of the Asserted Claims are indefinite:

**(1) “transmitting the electric or electromagnetic signals at a preselected frequency” (Claim 1)**

In light of the specification and the apparent scope of the claim required by Satius’s infringement contentions, the term “transmitting electric or electromagnetic signals at a preselected frequency” fails to provide reasonable certainty to those skilled in the art about the scope of the claims that include this term. A person of skill understood the difference between, and the claims specifically distinguish, electric and electromagnetic signals. A person of ordinary skill also understood that signals transmitted over the air for wireless communication must be electromagnetic signals. In contrast, a person of ordinary skill would not understand with any certainty what it means to transmit electric signals over the air for wireless communication.

A person of skill would also not understand what is meant by “a preselected frequency” in this context of claim 1. For example, it is unclear what the preselection must be with respect to and whether the transmitter must transmit at a single frequency or can transmit at multiple frequencies. The only time “preselected” appears in the written description is in language that mimics the claim language, which does not teach a person of skill how to make and use a transmitter that transmits electric or electromagnetic signals at a preselected frequency.

Thus this claim language is indefinite under 35 U.S.C. § 112, ¶ 2 (pre-AIA).

**(2) “transformer communicating the electric or electromagnetic signals to the air” (Claim 1)**

In light of the specification and the apparent scope of the claim required by Satius’s infringement contentions, the term “transformer communicating the electric or electromagnetic signals to the air” fails to provide reasonable certainty to those skilled in the art about the scope of the claims that include this term. As explained above, a person of ordinary skill would not understand what is meant by communicating electric signals to the air because a person of ordinary skill would understand that electromagnetic signals must be communicated to the air in wireless communications. Moreover, a person of ordinary skill would not understand what is meant by a transformer communicating signals (whether electric or electromagnetic) because a transformer is not a component of a wireless system that is used to communicate signals to the air. The transformer, as claimed, includes a coupler to match the output impedance of a transmitter to the characteristic impedance of air. Thus, the language is indefinite under 35 U.S.C. § 112, ¶ 2 (pre-AIA).

This limitation also renders claim 1 and its asserted dependent claims 11 and 18 invalid under 35 U.S.C. § 112 (pre-AIA) for simultaneously claiming both an apparatus and method of using the apparatus. *See, e.g., IPXL Holdings, L.L.C. v. Amazon.com, Inc.*, 430 F.3d 1377 (Fed. Cir. 2005). Specifically, claim 1 is expressly directed to an apparatus – a “communications apparatus” with a transformer – while also claiming that the transformer is “communicating the electric or electromagnetic signals to the air.” It would be unclear to a person of ordinary skill whether this limitation requires the transformer to actually be communicating signals to the air, not merely that it has the capability to communicate signals to the air. When read in context of the claims, however, a person of skill would understand that to infringe this claim this limitation does, in fact, require a transformer to be communicating signals to the air, not merely to have this



capability. *Compare* '385 Patent, claim 1 (“said transmitter for transmitting the electric or electromagnetic signals at a preselected frequency”) *with id.* (“said transformer communicating the electric or electromagnetic signals to the air”). *See Rembrandt Data Techs., LP v. AOL, LLC*, 2011 WL 1458662, \*7 (Fed. Cir. 2011) (affirming summary judgment of invalidity where apparatus claim recited “A data transmitting device for transmitting signals ... and transmitting the trellis encoded frames”) *aff’d*, 641 F.3d 1331, 1339–40 (Fed. Cir. 2011). Thus, in light of this limitation, the scope of the claims is, at least, not reasonably certain.

**(3) “coupler matching the output impedance of the transmitter to the characteristic impedance of the air” (Claim 1)**

In light of the specification and the apparent scope of the claim required by Satius’s infringement contentions, the term “coupler matching the output impedance of the transmitter to the characteristic impedance of the air” fails to provide reasonable certainty to those skilled in the art about the scope of the claims because the output impedance of transmitter and the characteristic impedance of the air represent different physical phenomena. Thus the language is indefinite under 35 U.S.C. § 112, ¶ 2 (pre-AIA).

This limitation also renders claim 1 and its asserted dependent claims 11 and 18 invalid under 35 U.S.C. § 112 (pre-AIA) for simultaneously claiming both an apparatus and method of using the apparatus. *See, e.g., IPXL Holdings, L.L.C. v. Amazon.com, Inc.*, 430 F.3d 1377 (Fed. Cir. 2005). Specifically, claim 1 is expressly directed to an apparatus – a “communications apparatus” with a coupler – while also claiming that the coupler is “matching the output impedance of the transmitter to the characteristic impedance of the air.” A person of ordinary skill would understand that this limitation requires the coupler to actually be matching the output impedance of the transmitter to the characteristic impedance of air, not merely that it has the capability to match these impedances. *Compare* '385 Patent, claim 1 (“said transmitter for

transmitting the electric or electromagnetic signals at a preselected frequency”) *with id.* (“said coupler matching the output impedance of the transmitter to the characteristic impedance of the air”). *See Rembrandt Data Techs., LP v. AOL, LLC*, 2011 WL 1458662, \*7 (Fed. Cir. 2011) (affirming summary judgment of invalidity where apparatus claim recited “A data transmitting device for transmitting signals ... and transmitting the trellis encoded frames”) *aff’d*, 641 F.3d 1331, 1339–40 (Fed. Cir. 2011). Thus, in light of this limitation, the scope of the claims is, at least, not reasonably certain.

**(4) “wherein the first conductive plate is matched to the characteristic impedance of the air at a preselected bandwidth” (Claim 11)**

In light of the specification and the apparent scope of the claim implied by Satius’s infringement contentions, the term “wherein the first conductive plate is matched to the characteristic impedance of the air at a preselected bandwidth” fails to provide reasonable certainty to those skilled in the art about the scope of the claims that include this term. It would be unclear to a person of ordinary skill what aspect of the first conductive plate is matched to the characteristic impedance of air. For example, whether it is the first plate’s transmission line impedance, its output impedance, or something else.

Moreover, it would be unclear to a person of ordinary skill what is meant by a “preselected bandwidth.” A person of ordinary skill would understand that there is not a universal definition for the bandwidth of a communication system. For example, persons of skill sometimes consider the bandwidth to the frequency range where the power has decreased to its half-power point, whereas persons of skill may use a different decrease in power to characterize the bandwidth. The choice of bandwidth can vary by industry and application. Thus the meaning of “bandwidth” is context dependent, there is not a single known approach to characterizing a bandwidth, and the ’385 Patent does make it reasonably certain to a person of ordinary skill

which approach to use. *See Dow Chem. Co. v. Nova Chemicals Corp. (Canada)*, 803 F.3d 620, 630 (Fed. Cir. 2015) (“Although the Court recognized that some modicum of uncertainty may be tolerated ... the patent and prosecution history must disclose a single known approach or establish that, where multiple known approaches exist, a person having ordinary skill in the art would know which approach to select.”) (internal quotation marks and citation omitted). In addition, it would be unclear to a person of skill what is meant by “preselected” in a “preselected bandwidth.”

It would also be unclear how the impedance of a conductive plate could be matched to the characteristic impedance of air if, as the patent alleges, the characteristic impedance of air can significantly vary due to, e.g., reflections external to the device.

This limitation also renders claim 11 and its asserted dependent claim 18 invalid under 35 U.S.C. § 112 (pre-AIA) for simultaneously claiming both an apparatus and method of using the apparatus. *See, e.g., IPXL Holdings, L.L.C. v. Amazon.com, Inc.*, 430 F.3d 1377 (Fed. Cir. 2005). Specifically, claim 11 is expressly directed to an apparatus – a “communications apparatus” with a coupler – with a first conductive plate that “*is matched* to the characteristic impedance of the air at at a preselected bandwidth.” Notwithstanding the indefiniteness, enablement, and written description issues discussed above, it would be unclear to a person of ordinary skill whether this limitation requires the conductive plate to actually be matching its impedance to the characteristic impedance of air, or have a fixed impedance that is matched to the characteristic impedance of air, which, according to the patent, can vary.

Thus claim 11 is indefinite under 35 U.S.C. § 112, ¶ 2 (pre-AIA).

- (5) **“wherein the first conductive plate and the second conductive plate are formed directly in a chip by deposition of metallic layers onto the chip” (Claim 18)**

In light of the specification and the apparent scope of the claim required by Satius’s

infringement contentions, the term “wherein the first conductive plate and the second conductive plate are formed directly in a chip by deposition of metallic layers onto the chip” fails to provide reasonable certainty to those skilled in the art about the scope of the claims that include this term. It would unclear to a person of ordinary skill how the conductive plates are both formed *in* a chip and *onto* the chip because those are mutually exclusive locations. Thus the language is indefinite under 35 U.S.C. § 112, ¶ 2 (pre-AIA).

### III. DOCUMENT PRODUCTION ACCOMPANYING INVALIDITY CONTENTIONS

With these invalidity contentions, in accordance with the Court’s Scheduling Order (Dkt. 20 at 4), Samsung is producing documents labeled SAM-SAT\_0253298-SAM-SAT\_0257588.

### IV. OTHER PRIOR ART

In addition to the prior art references that Samsung has specifically discussed in these Invalidity Contentions, Samsung identifies each reference produced and cited in the accompanying document production of the same date.

### V. PRIOR-ART INDEX

#### A. Patents and Published Patent Applications

Patent or Publication Number	Country of Origin	Filing Date	Issuance or Publication Date
US5969590	USA	08/05/1997	10/19/1999
US4809011	USA	06/14/1985	02/28/1989
US4201960	USA	05/24/1978	05/06/1980
US4951006	USA	09/12/1988	08/21/1990
US5170173	USA	04/27/1992	12/08/1992
US5281932	USA	09/04/1992	01/25/1994
US5400041	USA	09/07/1993	03/21/1995
US5420558	USA	05/26/1993	05/30/1995
US5463405	USA	05/20/1994	10/31/1995
US5467098	USA	12/02/1994	11/14/1995
US5497137	USA	12/16/1994	03/05/1996
US5563616	USA	03/18/1994	10/08/1996

Patent or Publication Number	Country of Origin	Filing Date	Issuance or Publication Date
US5565881	USA	03/11/1994	10/15/1996
US5778308	USA	12/26/1996	07/07/1998
US5818127	USA	06/27/1997	10/06/1998
US5862458	USA	04/17/1996	01/19/1999
US5874926	USA	03/10/1997	02/23/1999
US5877667	USA	08/01/1996	03/02/1999
US5889497	USA	05/18/1995	03/30/1999
US5969590	USA	08/05/1997	10/19/1999
US5973646	USA	05/02/1997	10/26/1999
US6002367	USA	05/19/1997	12/14/1999
US6005520	USA	03/30/1998	12/21/1999
US6026286	USA	08/01/1996	02/15/2000
US6087906	USA	06/17/1998	07/11/2000
US6100773	USA	09/18/1998	08/08/2000
US6121940	USA	08/03/1998	09/19/2000
US6177872	USA	11/13/1998	01/23/2001
US6188364	USA	11/12/1999	02/13/2001
US6288679	USA	05/31/2000	09/11/2001
US6333719	USA	06/16/2000	12/25/2001
US6346913	USA	02/29/2000	02/12/2002
US6396362	USA	01/10/2000	05/28/2002
US6396363	USA	12/17/1999	05/28/2002
US6424232	USA	11/30/1999	07/23/2002
US6486765	USA	03/21/2000	11/26/2002
US6628237	USA	03/25/2000	09/30/2003
US6738603	USA	06/09/2000	05/18/2004
US6920315	USA	03/22/2000	07/19/2005
WO1998040980	USA	03/13/1998	09/17/1998
US7983626	USA	01/24/2005	07/19/2011
US6611691	USA	12/24/1998	08/26/2003
US6590538	USA	03/20/2001	07/08/2003
US6442400	USA	11/06/1998	08/27/2002
US6414562	USA	05/27/1997	07/02/2002
US6285327	USA	08/21/1998	09/04/2001
US6218989	USA	08/08/1996	04/17/2001
US6215448	USA	07/30/1999	04/10/2001

Patent or Publication Number	Country of Origin	Filing Date	Issuance or Publication Date
US5952896	USA	10/20/1997	09/14/1999
US5874926	USA	03/10/1997	02/23/1999
US5771441	USA	04/10/1996	06/23/1998
US5754141	USA	10/27/1997	05/19/1998
US5737698	USA	03/18/1996	04/07/1998
US5710984	USA	10/20/1995	01/20/1998
US5617105	USA	09/23/1994	04/01/1997
US5542106	USA	09/15/1994	07/30/1996
US5511238	USA	06/26/1987	04/23/1996
US5493719	USA	07/01/1994	02/20/1996
US5467099	USA	11/24/1993	11/14/1995
US5450092	USA	04/26/1993	09/12/1995
US5335368	USA	05/29/1992	08/02/1994
US5170173	USA	04/27/1992	12/08/1992
US5072230	USA	09/26/1988	12/10/1991
US5019829	USA	02/08/1989	05/28/1991
US4999642	USA	05/05/1989	03/12/1991
US4965607	USA	04/30/1987	10/23/1990
US4785345	USA	05/08/1986	11/15/1988
US4764773	USA	07/30/1985	08/16/1988
US2687513	USA	03/18/1952	08/24/1954
US4380767	USA	10/27/1980	04/19/1983
EP0909024	Japan	09/09/1998	04/14/1999
EP0828306	Finland	09/02/1997	03/11/1998
EP0050918	USA	09/23/1981	05/15/1982
DE4129011	Germany	08/31/1991	03/04/1993
US4038662	USA	10/07/1975	07/26/1977
US6104707	USA	03/14/1997	08/15/2000
US5589844	USA	06/06/1995	12/31/1996
US6219532	USA	10/23/1998	04/17/2001
US5754141	USA	10/27/1997	05/19/1998
US5335368	USA	05/29/1992	08/02/1994
US4799066	USA	07/18/1986	01/17/1989
US5778308	USA	12/26/1996	07/07/1998
US5739792	USA	12/22/1995	04/14/1998
US4571595	USA	12/05/1983	02/18/1986

Patent or Publication Number	Country of Origin	Filing Date	Issuance or Publication Date
US5751253	USA	09/11/1995	05/12/1998
US5589844	USA	06/06/1995	12/31/1996
US4999642	USA	05/05/1989	03/12/1991
US4862516	USA	02/27/1987	08/29/1989
US5867127	USA	09/11/1997	02/02/1999
US5940040	USA	08/13/1997	08/17/1999
US5991608	USA	03/12/1997	11/23/1999
US6087996	USA	02/21/1997	07/11/2000
US5801662	USA	12/26/1996	09/01/1998
US5889497	USA	11/20/1996	03/30/1999
US5790081	USA	01/30/1996	08/04/1998
US6100773	USA	09/18/1998	08/08/2000
US5986617	USA	08/31/1998	11/16/1999
US6147651	USA	08/06/1998	11/14/2000
US6590538	USA	03/20/2001	07/08/2003
US6507475	USA	06/27/2000	01/14/2003
US6335710	USA	06/16/2000	01/01/2002
US6246373	USA	11/22/1999	06/12/2001
US6215456	USA	08/03/1999	04/10/2001
US6259930	USA	12/24/1998	07/10/2001
US6611691	USA	12/24/1998	08/26/2003
US6211826	USA	10/26/1998	04/03/2001
US6219532	USA	10/23/1998	04/17/2001
US6339711	USA	03/16/1998	01/15/2002
US6738603	USA	06/09/2000	05/18/2004
US2005130	USA	01/24/2005	06/16/2005
USH1959(H)	USA	09/03/1998	05/01/2001
WO1995001009	USA	06/03/1994	01/05/1995
US5847621	USA	05/14/1997	12/08/1998

## B. Publications

Title	Date of Publication	Author/ Publisher
RF CIRCUIT DESIGN	1982	Chris Bowick/ Butterworth-Heinemann
ANTENNA THEORY AND DESIGN	1998	Warren L. Stutzman & Gary A. Thiele/ Wiley



<b>Title</b>	<b>Date of Publication</b>	<b>Author/ Publisher</b>
Chemical Vapor Deposition, Second International Conference	1970	The Electrochemical Society, Inc.
Design Guidelines for Shielding Effectiveness, Current Carrying Capability, and the Enhancement of Conductivity of Composite Materials	1997	R.W. Evans / NASA
MICROWAVE ENGINEERING (2D ED.)	1998	David M. Pozar/ John Wiley & Sons, Inc.
Theoretical Limitations on the Broadband Matching of Arbitrary Impedances	1948	R.M. Fano/ MIT Research Labs of Elec.
Understanding electromagnetic fields and antenna radiation takes (almost) no math	03/02/2000	Ron Schmitt/ EDN
Antenna Coupler CU-215/APT (Balancing Transformer), WADC Technical Report 52-194	1952	Wright Air Development Center, Air Research and Development Command
Proceedings of the Workshop on Printed Circuit Antenna Technology	1979	Army Research Office, New Mexico State University (Physical Science Laboratory)
Shipboard Antenna Concepts: Structurally Independent 2- to 6-MHz Transmit Antenna Design	1991	R.S. Abramo/ Naval Ocean System Center
Phased Array Adjustment for Ham Radio	1996	G. Bingeman
THE ARRL ANTENNA BOOK (18th ed.)	1997	Straw / ARRL
Variable Air Transformer for Impedance Matching	1966	P. Mataboni & E. Schreiber/ Review of Scientific Instruments
Maintenance of Remote Communication Facility (RCF) Equipment	1989	U.S. Dep't of Transportation, FAA
RF Prototyping Techniques, ECE145/ECE218	1998	C. Bourde, J. Fuller, S. Long/ USCB/ECE
Instruments & Methods: Systems for Measuring Thickness of Temperate & Polar Ice from the Ground or from the Air	1981	R. D. Watta & D. L. Wright/ Journal of Glaciology
RF Transformers	09/08/1999	Minicircuits.com
Radio Modem M30390: Integrator's Manual	09/1999	Ericsson
Astro Digital XTS 3000 and XTS 3000R: Portable Radios Detailed Service Manual	2001	Motorola
LoJack III Portable: Theory of Operation and Tuning Procedure	10/20/1999	Motorola
Nokia 9000il Communicator Owner's Manual	1997	Nokia
Service Manual [RMP Part No. 0275188] RAE/RAK-1 Series Cellular Phone/Personal Digital Assistant	1997	Nokia

### **C. Products and Systems**

The following section identifies products and systems ("Prior Art Mobile Devices") that,



on information and belief, are prior art to the Asserted Patent under pre-AIA 35 U.S.C. § 102(b) or § 102(g). The “Product” column identifies the products/systems. The “Company/Individual” identifies the entity that, on information and belief, (a) sold the product/system, (b) offered the product/system for sale, (c) publicly used the product/system, (d) was involved in manufacturing the product/system, or (e) has information regarding the product/system’s development or manufacturing before the priority date of the Asserted Patent. The “Date of first sale/offer for sale/public use” identifies the date when, on information and belief, the product/system was first sold, offered for sale, or publicly displayed or used in the United States.

On information and belief, each of the products identified below contained an impedance matching circuit or discrete impedance transformer component between the transmitter and antenna, which invalidates the Asserted Claims, at least, under the scope of the claims required by Satius’s initial infringement contentions. This is because, as explained above, impedance matching was a common, well-understood technique in the field of wireless RF communications and rarely does the impedance of a transmission line or transmitter have an impedance that exactly matches the impedance of the load (e.g., antenna). “If the impedance at the input of the transmission line connected to the transmitter differs appreciably from the load resistance into which the transmitter output circuit is designed to operate, an impedance-matching network must be inserted between the transmitter and the line input terminals.... [R]adio amateurs commonly call such a device an *antenna tuner*. The function of an antenna tuner is to transform the impedance at the input end of the transmission line—whatever it may be—to the 50  $\Omega$  needed to keep the transmitter loaded properly.” Straw, THE ARRL ANTENNA BOOK 25-1 (18th ed. 1997). Thus, on information and belief, the Prior Art Mobile Devices identified below include an antenna tuner, or a similar impedance matching component or circuit, to match the output

impedance of a transmitter or power amplifier to the input impedance of transmission line which is matched at its output to the input impedance of the antennas. *See, e.g.*, Nokia 9000il Communicator Service Manual [RMP Part No. 0275188] RAE/RAK-1 Series Cellular Phone/Personal Digital Assistant, Nokia Mobile Phones (May 1997) at 4-13 (“Antenna matching circuit: The purpose of the antenna matching circuit is to transform the antenna feedpoint impedance to 50 ohm, which is the nominal impedance of the antenna cable. The matching circuit consists of a series inductor and capasitor [sic] and shunt inductors in GSM and series inductor and shunt inductor in PCN.”).

# **1. Products & System prior art**

Product	Company/Individual	Date of first sale/offer for sale/public use (on information and belief)
SGH-250	Samsung	On or before July 6, 2000
SGH-500	Samsung	On or before July 6, 2000
SGH-600	Samsung	On or before July 6, 2000
SGH-800	Samsung	On or before July 6, 2000
SGH-810	Samsung	On or before July 6, 2000
SGH-2100	Samsung	On or before July 6, 2000
SGH-2200	Samsung	On or before July 6, 2000
SGH-2400	Samsung	On or before July 6, 2000
A100	Samsung	On or before July 6, 2000
A110	Samsung	On or before July 6, 2000
M100	Samsung	On or before July 6, 2000
N100 <sup>3</sup>	Samsung	On or before July 6, 2000
DynaTac	Motorola	On or before July 6, 2000
4500x	Motorola	On or before July 6, 2000
MicroTac	Motorola	On or before July 6, 2000
2900	Motorola	On or before July 6, 2000
Flare	Motorola	On or before July 6, 2000
StarTac	Motorola	On or before July 6, 2000
2900	Motorola	On or before July 6, 2000
D160	Motorola	On or before July 6, 2000

<sup>3</sup> The SGH-250, SGH-500, SGH-600, SGH-800, SGH-810, SGH-2100, SGH-2200, SGH-2400, A100, A110, M100, and N100 are collectively the “Prior Art Samsung Devices.”

<b>Product</b>	<b>Company/Individual</b>	<b>Date of first sale/offer for sale/public use (on information and belief)</b>
I1000 Plus	Motorola	On or before July 6, 2000
V100	Motorola	On or before July 6, 2000
P7389i <sup>4</sup>	Motorola	On or before July 6, 2000
Cityman	Nokia	On or before July 6, 2000
101	Nokia	On or before July 6, 2000
1001	Nokia	On or before July 6, 2000
2110	Nokia	On or before July 6, 2000
232	Nokia	On or before July 6, 2000
1610	Nokia	On or before July 6, 2000
8110	Nokia	On or before July 6, 2000
3110	Nokia	On or before July 6, 2000
rinGo	Nokia	On or before July 6, 2000
5110	Nokia	On or before July 6, 2000
6110	Nokia	On or before July 6, 2000
3210	Nokia	On or before July 6, 2000
7110	Nokia	On or before July 6, 2000
8210	Nokia	On or before July 6, 2000
3310	Nokia	On or before July 6, 2000
8810	Nokia	On or before July 6, 2000
8850	Nokia	On or before July 6, 2000
9000il Communicator <sup>5</sup>	Nokia	07/1998
EH97	Ericsson	On or before July 6, 2000
GH172	Ericsson	On or before July 6, 2000
GH197	Ericsson	On or before July 6, 2000
EH237	Ericsson	On or before July 6, 2000
GH337	Ericsson	On or before July 6, 2000
GA318	Ericsson	On or before July 6, 2000
GA628	Ericsson	On or before July 6, 2000
GF768	Ericsson	On or before July 6, 2000
T28	Ericsson	On or before July 6, 2000
A1018 <sup>6</sup>	Ericsson	On or before July 6, 2000
pdQ 1900	Qualcomm	06/1999
pdQ 800 <sup>7</sup>	Qualcomm	06/1999

<sup>4</sup> The DynaTac, 4500x, MicroTac, 2900, Flare, StarTac, 2900, D160, I1000 Plus, V100, and P7389i are collectively the “Prior Art Motorola Devices.”

<sup>5</sup> The Cityman, 101, 1001, 2110, 232, 1610, 8110, 3110, rinGo, 5110, 6110, 3210, 7110, 8210, 3310, 8810, 8850, and 9000il Communicator are collectively the “Prior Art Nokia Devices.”

<sup>6</sup> The EH97, GH172, GH197, EH237, GH337, GA318, GA628, GF768, T28, and A1018 are collectively the “Prior Art Ericsson Devices.”

<sup>7</sup> The pdQ 1900 and pdQ 800 are collectively the “Prior Art Qualcomm Devices.”



Dated: April 5, 2019

Respectfully submitted,

/s/ Brian G. Bieluch

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**CERTIFICATE OF SERVICE**

I, Patrick N. Flynn, hereby certify that on April 5, 2019, I caused a true and correct copy of the foregoing document to be served by e-mail upon all counsel of record.

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# EXHIBIT F

**Invalidity Contentions for U.S. Patent No. 6,711,385: U.S. Patent No. 5,778,308 (“Sroka”)**

Sroka was filed on December 26, 1996, and issued on July 7, 1998. Sroka therefore qualifies as prior art to the ’385 Patent under (pre-AIA) 35 U.S.C. § 102. For at least the reasons below, Sroka invalidates the Asserted Claims of the ’385 Patent under 35 U.S.C. §§ 102 or 103, either alone or in combination with the background knowledge and ordinary skill of a person skilled in the art and/or one or more of the other prior art references identified in Samsung’s invalidity contentions.

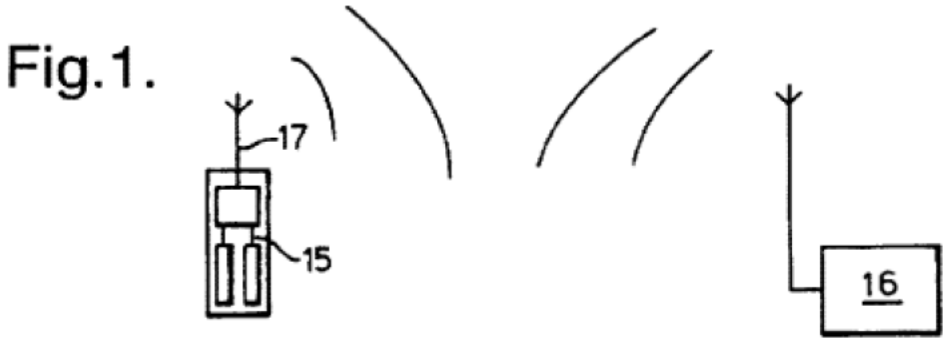
Citations using the signal “*see, e.g.*” or “*see also*” provide additional and alternative invalidity contentions by providing evidence of how the references would have been understood by one of skill in the art, or evidence that the claim is inherently anticipated or rendered obvious. Motivations to combine include at least the similarity in subject matter between the references, such as techniques for transmitting electromagnetic signals over the air or matching impedances in electrical circuits. Where the references cite other patents or publications, or suggest additional changes, one of ordinary skill in the art would look beyond a single reference to other references in the field.

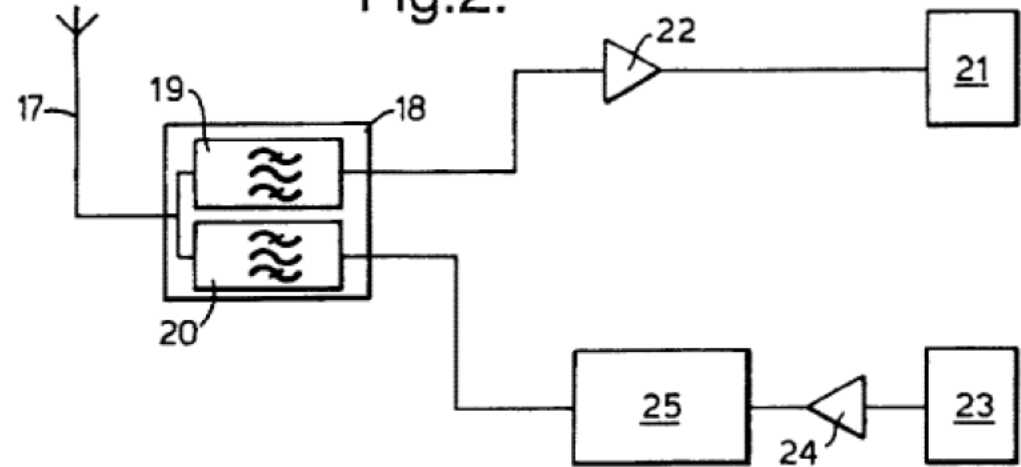
These invalidity contentions are based on Samsung’s present understanding of the Asserted Claims and its investigation to date in view of Satius’s apparent views on the scope and constructions of the claims provided in Satius’s Infringement Contentions, which are deficient at least because they fail (i) to cite documents, (ii) to identify accused structures, acts, or materials in the Accused Products with particularity, and (iii) to identify Satius’s doctrine of equivalents allegations with the specificity required by the Discovery Order, the Court’s individual rules of practice, the District of Delaware’s Local Rules, and the Federal Rules of Civil Procedure.

To evaluate how the prior art references below apply to the Asserted Claims of the ’385 Patent, Samsung has assumed—for this exercise only—a claim scope necessarily entailed by Satius’s allegations that Samsung’s Accused Products infringe the Asserted Claims. By making this assumption, Samsung does not concede that the scope of the Asserted Claims, as properly construed, would support or allow Satius’s infringement allegations. Instead, these invalidity charts show that if an Asserted Claim is broad enough to read on the Accused Products, the claim would also be invalidated by the prior art as demonstrated here. Samsung does not agree with Satius’s application of the Asserted Claims, or that the Asserted Claims satisfy the requirements of 35 U.S.C. § 112. Through these contentions, Samsung does not admit or adopt any particular claim scope or construction, and does not admit that any particular limitation is met in any particular way. Samsung objects to any attempt to imply claim constructions from these contentions. Samsung’s prior art invalidity contentions are made in a variety of alternatives and do not represent Samsung’s agreement or view about the meaning, definiteness, written description support for, or enablement of any claim contained therein.

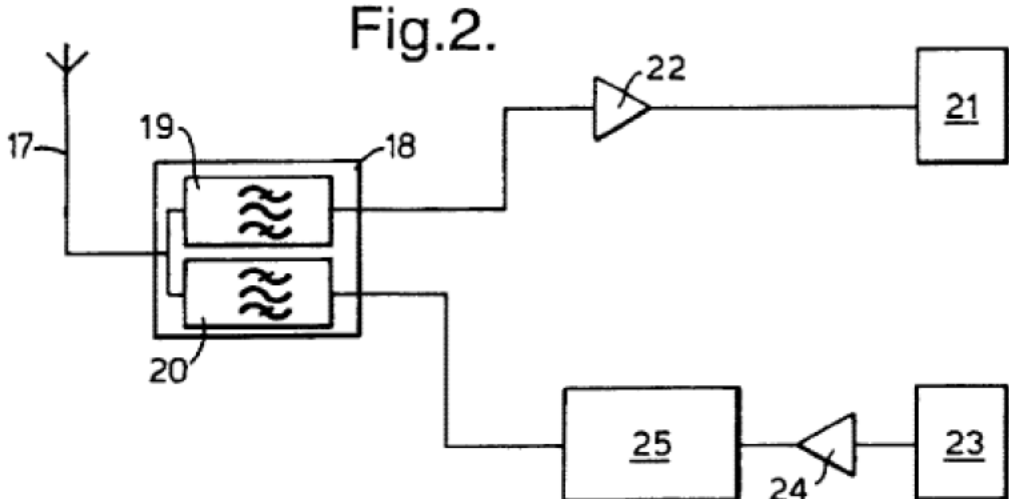


Claim	Limitation	US 5,778,308 (“Sroka”)
<b>1[pre]</b>	1. A communications apparatus for transmitting electric or electromagnetic signals over air, the air having a characteristic impedance, the communications apparatus comprising:	<p>To the extent the preamble is a limitation, Sroka discloses or renders obvious (alone or in combination with the prior art and/or common knowledge of one of ordinary skill) a communications apparatus for transmitting electric or electromagnetic signals over air the air having a characteristic impedance.</p> <p><i>See, e.g.:</i></p> <p>“In a mobile radio telephone, an adaptive impedance matching circuit (25) is positioned between a transmitting power amplifier (24) and a duplexer (18). The adaptive matching circuit (25) matches an antenna (17) to associated electronic circuitry, thereby optimising power transfer in an effort to maintain communication with a base station and to minimise power dissipation within the device itself.” Sroka at Abstract.</p> <p>“In a radio communications device, an antenna is responsible for effecting conversions between electromagnetic signals and electrical signals. Electrical signals having a frequency high enough to be radiated in this way are usually identified as ‘radio frequency’ (RF) signals and it is well known in the art that care must be taken when transmitting and processing signals of this type, given their inherent ability to be re-radiated.” Sroka at 1:11-18</p> <p>“An important parameter to consider, when designing an antenna, is characteristic impedance and in order to effect maximum power transfer between an antenna and, circuitry connected thereto, it is important to ensure that the characteristic impedance of the antenna is matched by the characteristic impedance of the associated circuitry. In practice, circuitry will be designed to present the required impedance to the antenna which, in theory, should achieve maximum power transfer. However, the characteristic impedance of the antenna will also vary with operating conditions. For example, mobile cellular telephones are often placed on table tops, close to a vehicle facia and, when in operation, close to a user. Each of these positions will result in modifications being made to the characteristic</p>

Claim	Limitation	US 5,778,308 ("Sroka")
		<p>impedance of the antenna which may interfere with the normal operation of the telephone to a greater or lesser extent." Sroka at 1:19-35.</p> <p>"When a mis-match occurs between the characteristic impedance of an antenna and the impedance of associated circuitry, the transfer of power between these two devices will be less than optimum. Thus, while transmitting, signals generated by an output power amplifier will be supplied to the antenna. However, given that a mis-match is present, not all of the signal power will be transmitted by the antenna and a proportion will be reflected back to the amplifier. " Sroka at 1:36-43.</p> <p>"According to an aspect of the present invention, there is provided an adaptive antenna matching network in which the impedance of said matching network is adjusted in response to the operating environment of the antenna comprising means for directly measuring the level of reflected signals and means responsive thereto for adjusting the impedance of the matching network." Sroka at 2:17-24.</p> <p><b>Fig.1.</b></p>  <p>"FIG. 1 shows a mobile radio cellular telephone communicating with a base station" Sroka at 2:36-37.</p>

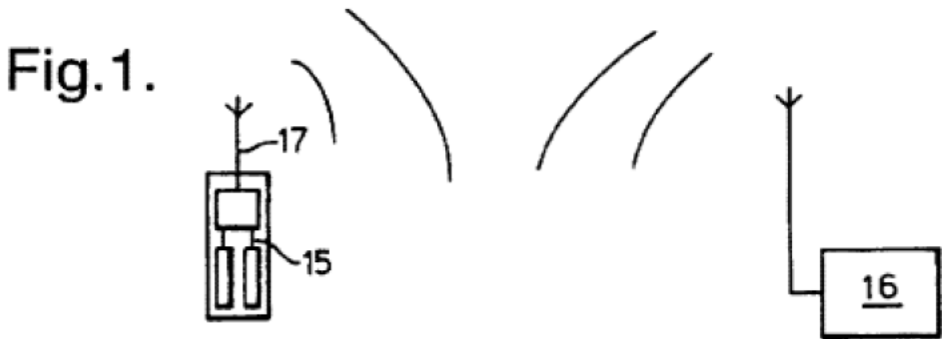
Claim	Limitation	US 5,778,308 ("Sroka")
		<p data-bbox="846 237 1896 302">"A radio cellular telephone unit 15 is shown in FIG. 1 communicating with a base station 16." Sroka at 2:53-54.</p> <p data-bbox="846 342 1896 448">"The telephone unit is arranged to communicate with one of a plurality of base stations, such as base station 16, depending upon its geographical location." Sroka at 2:59-61.</p> <div data-bbox="846 561 1860 1065"> <p data-bbox="1199 561 1346 626">Fig.2.</p>  <pre> graph LR     Ant17[17] --- Duplex18[18]     subgraph Duplex18         Filter19[19]         Filter20[20]     end     Duplex18 --&gt; Amp22[22]     Amp22 --&gt; Proc21[21]     Proc23[23] --&gt; Amp24[24]     Amp24 --&gt; Net25[25]     Net25 --&gt; Filter20     Filter20 --&gt; Ant17 </pre> </div> <p data-bbox="846 1122 1896 1373">"The radio telephone unit 15 shown in FIG. 1 is detailed in FIG. 2. Antenna 17 is connected to a duplexing circuit 18, essentially containing a first band pass filter 19 and a second band pass filter 20. Signals received by the antenna 17 are allowed to pass through band pass filter 19 and are, in turn, supplied to an input processing circuit 21 via an input amplifier 22. Similarly, an output circuit 23 generates signals which are supplied to the antenna 17, via an output power amplifier 24, an adaptive antenna matching network 25 and the output band pass filter 20." Sroka at 3:8-17.</p>

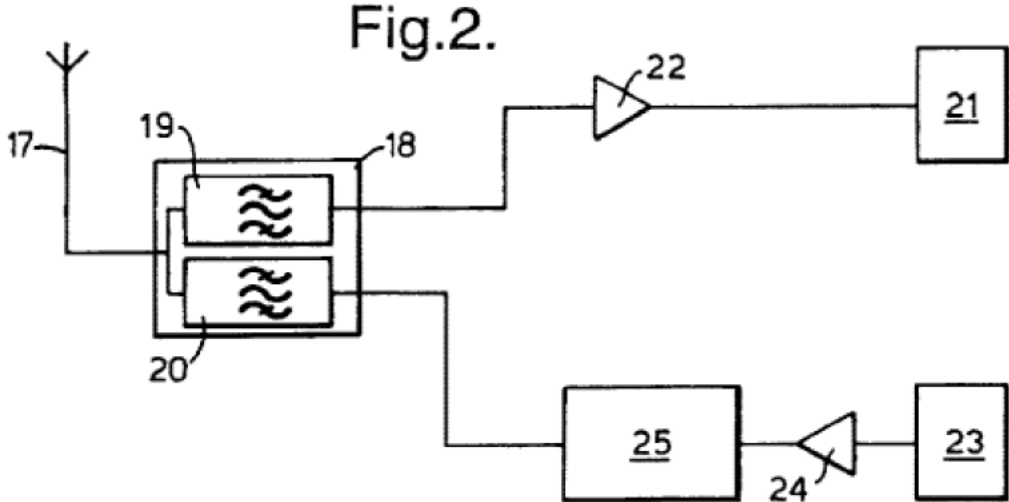
Claim	Limitation	US 5,778,308 (“Sroka”)
		<p>“In this embodiment, antenna matching is effected by considering signals which are being transmitted by the radio telephone. In alternative embodiments, the adaptive antenna matching network or an additional matching network could be provided between input band pass filter 19 and input amplifier 22. In another alternative embodiment, the adaptive antenna matching circuit 25 may be provided between the antenna 17 and the duplexer 18, allowing adaptation to be effected in response to both transmitted and received signals.” Sroka at 3:18-29.</p>
1[a]	a transmitter having an output impedance,	<p>Sroka discloses or renders obvious (alone or in combination with the prior art and/or common knowledge of one of ordinary skill) a transmitter having an output impedance.</p> <p><i>See, e.g.:</i></p> <p>“In a mobile radio telephone, an adaptive impedance matching circuit (25) is positioned between a transmitting power amplifier (24) and a duplexer (18). The adaptive matching circuit (25) matches an antenna (17) to associated electronic circuitry, thereby optimising power transfer in an effort to maintain communication with a base station and to minimise power dissipation within the device itself.” Sroka at Abstract.</p> <p>“An important parameter to consider, when designing an antenna, is characteristic impedance and in order to effect maximum power transfer between an antenna and, circuitry connected thereto, it is important to ensure that the characteristic impedance of the antenna is matched by the characteristic impedance of the associated circuitry. In practice, circuitry will be designed to present the required impedance to the antenna which, in theory, should achieve maximum power transfer.” Sroka at 1:19-28.</p> <p>“When a mis-match occurs between the characteristic impedance of an antenna and the impedance of associated circuitry, the transfer of power between these two</p>

Claim	Limitation	US 5,778,308 ("Sroka")
		<p>devices will be less than optimum. Thus, while transmitting, signals generated by an output power amplifier will be supplied to the antenna. However, given that a mismatch is present, not all of the signal power will be transmitted by the antenna and a proportion will be reflected back to the amplifier." Sroka at 1:36-43.</p> <p style="text-align: center;"><b>Fig.2.</b></p>  <p>"The radio telephone unit 15 shown in FIG. 1 is detailed in FIG. 2. Antenna 17 is connected to a duplexing circuit 18, essentially containing a first band pass filter 19 and a second band pass filter 20. Signals received by the antenna 17 are allowed to pass through band pass filter 19 and are, in turn, supplied to an input processing circuit 21 via an input amplifier 22. Similarly, an output circuit 23 generates signals which are supplied to the antenna 17, via an output power amplifier 24, an adaptive antenna matching network 25 and the output band pass filter 20. In this embodiment, antenna matching is effected by considering signals which are being transmitted by the radio telephone." Sroka at 3:8-20.</p>

Claim	Limitation	US 5,778,308 (“Sroka”)
		<p>“In another alternative embodiment, the adaptive antenna matching circuit 25 may be provided between the antenna 17 and the duplexer 18, allowing adaptation to be effected in response to both transmitted and received signals.” Sroka at 3:25-29.</p> <p>“The adaptive antenna matching network 25 is detailed in FIG. 3A. Impedance matching is effected by means of an adaptable passive matching network 31 of passive, variable-reactance components, which is adapted in response to signals received from a digital processor 32. Output signals from the output power amplifier 24 are supplied to the matching circuit 31 via a coupler 33, arranged to direct a proportion of said signals to processor 32, via a detector 34 and an analog-to-digital converter 35. Detector 34 essentially consists of a diode and is arranged to generate a voltage proportional to the power of the signal received from the coupler 33. This voltage is in turn supplied to the analog to digital converter 35, arranged to supply a digital representation of said voltage to the processor 32. Thus, the coupler 33, the detector 34 and the analog-to-digital converter 35 provide a digital indication to the processor 32 of the power of the forward transmission signals supplied to the antenna. As the radio telephone typically determines the transmission level a digital indication of the transmission level could be provided without direct measurement being necessary.” Sroka at 3:34-54.</p>
<b>1[b]</b>	said transmitter for transmitting the electric or electromagnetic signals at a preselected frequency; and	<p>Sroka discloses or renders obvious (alone or in combination with the prior art and/or common knowledge of one of ordinary skill) said transmitter for transmitting the electric or electromagnetic signals at a preselected frequency.</p> <p><i>See, e.g.:</i></p> <p>“In a mobile radio telephone, an adaptive impedance matching circuit (25) is positioned between a transmitting power amplifier (24) and a duplexer (18). The adaptive matching circuit (25) matches an antenna (17) to associated electronic circuitry, thereby optimising power transfer in an effort to maintain communication</p>

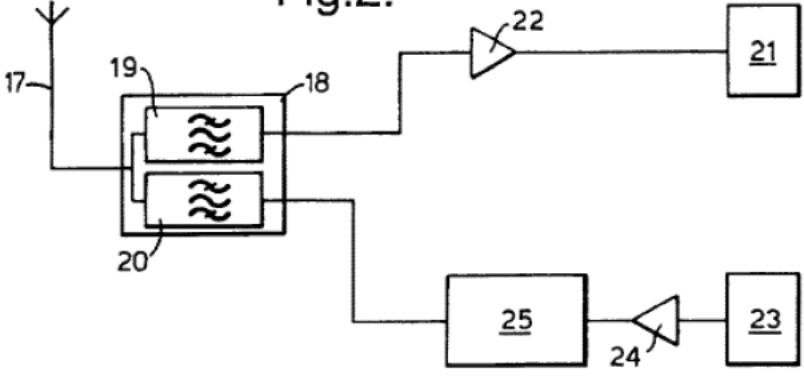


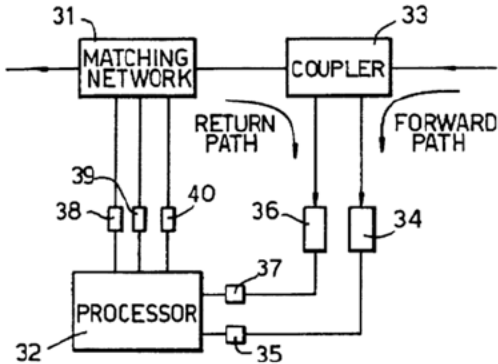
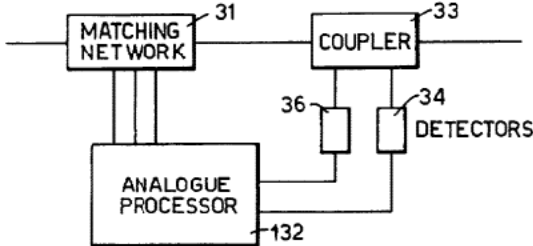
Claim	Limitation	US 5,778,308 ("Sroka")
		<p>with a base station and to minimise power dissipation within the device itself." Sroka at Abstract.</p> <p><b>Fig.1.</b></p>  <p>"FIG. 1 shows a mobile radio cellular telephone communicating with a base station" Sroka at 2:36-37.</p> <p>"A radio cellular telephone unit 15 is shown in FIG. 1 communicating with a base station 16. The radio telephone unit is of a TDMA type, wherein data is transmitted during allotted time slots." Sroka at 2:53-56.</p> <p>"The telephone unit is arranged to communicate with one of a plurality of base stations, such as base station 16, depending upon its geographical location." Sroka at 2:59-61.</p> <p>"Transmitted signals and received signals are further separated from each other by frequency-division multiplex. Thus, out-going signals are transmitted in time slots having a carrier of a first frequency, while in-coming signals are received on a carrier of a different frequency. In this way, an antenna 17 may be used for both transmission and reception, with frequency-sensitive circuits being provided to effect a duplexing function." Sroka at 3:1-8.</p>

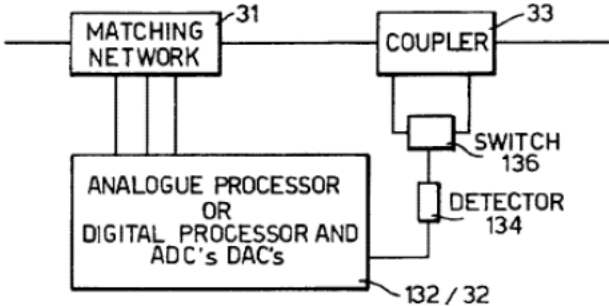
Claim	Limitation	US 5,778,308 ("Sroka")
		<p style="text-align: center;"><b>Fig.2.</b></p>  <p>“The radio telephone unit 15 shown in FIG. 1 is detailed in FIG. 2. Antenna 17 is connected to a duplexing circuit 18, essentially containing a first band pass filter 19 and a second band pass filter 20. Signals received by the antenna 17 are allowed to pass through band pass filter 19 and are, in turn, supplied to an input processing circuit 21 via an input amplifier 22. Similarly, an output circuit 23 generates signals which are supplied to the antenna 17, via an output power amplifier 24, an adaptive antenna matching network 25 and the output band pass filter 20. In this embodiment, antenna matching is effected by considering signals which are being transmitted by the radio telephone.” Sroka at 3:8-20.</p> <p><i>See also Sroka 8:6-12</i></p>
<b>1[c]</b>	a coupler connected to the transmitter	<p>Sroka discloses or renders obvious (alone or in combination with the prior art and/or common knowledge of one of ordinary skill) a coupler connected to the transmitter.</p> <p><i>See, e.g.:</i></p>



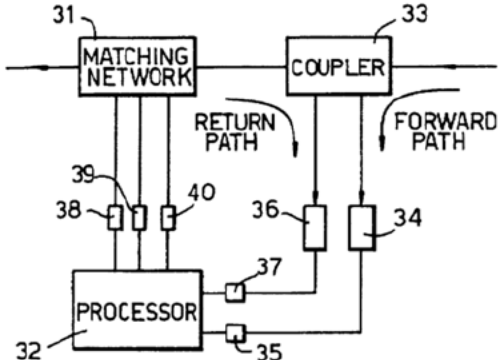
Claim	Limitation	US 5,778,308 (“Sroka”)
		<p>“In a mobile radio telephone, an adaptive impedance matching circuit (25) is positioned between a transmitting power amplifier (24) and a duplexer (18). The adaptive matching circuit (25) matches an antenna (17) to associated electronic circuitry, thereby optimising power transfer in an effort to maintain communication with a base station and to minimise power dissipation within the device itself.” Sroka at Abstract.</p> <p>“When a mis-match occurs between the characteristic impedance of an antenna and the impedance of associated circuitry, the transfer of power between these two devices will be less than optimum. Thus, while transmitting, signals generated by an output power amplifier will be supplied to the antenna. However, given that a mis-match is present, not all of the signal power will be transmitted by the antenna and a proportion will be reflected back to the amplifier. Similarly, when receiving signals, not all of the signal power will be transferred from the antenna to receiving circuitry and some of it will be reflected back to the antenna, again resulting in less than optimum power transfer between the antenna and the associated circuitry. Also, the non-optimal match between amplifier and antenna can result in reduced performance of the amplifier. This may affect its linearity, efficiency and other key parameters.</p> <p>It is accepted that, during normal operation, variations will occur to the actual operating impedance of the antenna. Thus, in order to overcome these variations in impedance, it is possible to provide an adaptive antenna matching network which compensates for these variations.” Sroka at 1:36-56.</p> <p>“According to an aspect of the present invention, there is provided an adaptive antenna matching network in which the impedance of said matching network is adjusted in response to the operating environment of the antenna comprising means for directly measuring the level of reflected signals and means responsive thereto for adjusting the impedance of the matching network.” Sroka at 2:17-24.</p>

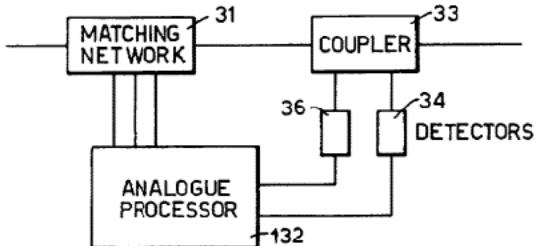
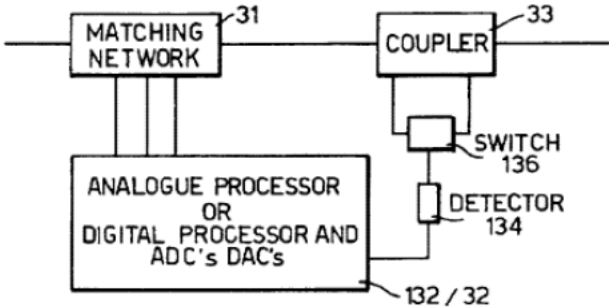
Claim	Limitation	US 5,778,308 ("Sroka")
		<p data-bbox="1129 235 1249 284"><b>Fig.2.</b></p>  <p data-bbox="846 686 1917 938">“The radio telephone unit 15 shown in FIG. 1 is detailed in FIG. 2. Antenna 17 is connected to a duplexing circuit 18, essentially containing a first band pass filter 19 and a second band pass filter 20. Signals received by the antenna 17 are allowed to pass through band pass filter 19 and are, in turn, supplied to an input processing circuit 21 via an input amplifier 22. Similarly, an output circuit 23 generates signals which are supplied to the antenna 17, via an output power amplifier 24, an adaptive antenna matching network 25 and the output band pass filter 20.” Sroka at 3:8-17.</p> <p data-bbox="846 979 1917 1084">“In another alternative embodiment, the adaptive antenna matching circuit 25 may be provided between the antenna 17 and the duplexer 18, allowing adaptation to be effected in response to both transmitted and received signals.” Sroka at 3:25-29.</p>

Claim	Limitation	US 5,778,308 ("Sroka")
		<p><b>Fig.3A.</b></p>  <p><b>Fig.3B.</b></p> 

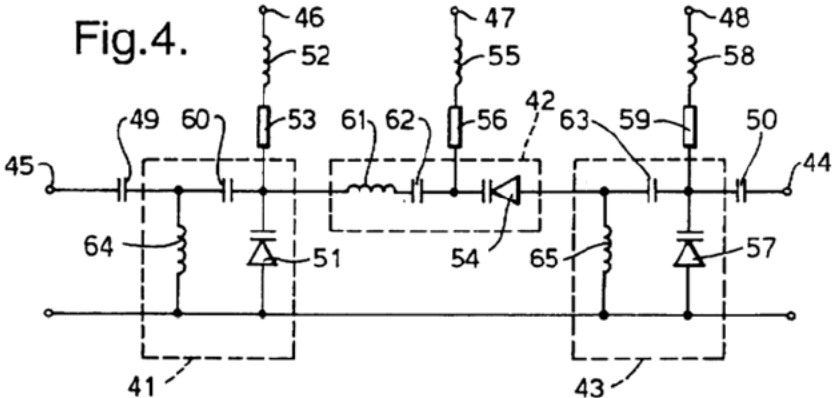
Claim	Limitation	US 5,778,308 ("Sroka")
		<p><b>Fig.3C.</b></p>  <p>“FIGS. 3A-3C detail examples of the adaptive antenna matching circuits shown in FIG. 2, each including a matching network” Sroka at 2:41-43.</p> <p>“The adaptive antenna matching network 25 is detailed in FIG. 3A. Impedance matching is effected by means of an adaptable passive matching network 31 of passive, variable-reactance components, which is adapted in response to signals received from a digital processor 32. Output signals from the output power amplifier 24 are supplied to the matching circuit 31 via a coupler 33, arranged to direct a proportion of said signals to processor 32, via a detector 34 and an analog-to-digital converter 35. Detector 34 essentially consists of a diode and is arranged to generate a voltage proportional to the power of the signal received from the coupler 33. This voltage is in turn supplied to the analog to digital converter 35, arranged to supply a digital representation of said voltage to the processor 32. Thus, the coupler 33, the detector 34 and the analog-to-digital converter 35 provide a digital indication to the processor 32 of the power of the forward transmission signals supplied to the antenna. As the radio telephone typically determines the transmission level a digital indication of the transmission level could be provided without direct measurement being necessary.</p> <p>An analogue processor could be used instead of the digital processor 32. In this case no A/D converters 35, 37 would be necessary. See FIG. 3B. As a further option, a</p>

Claim	Limitation	US 5,778,308 (“Sroka”)
		<p>single detector 134 could replace the two detectors 34, 36. A switch 136 would then be provided to enable forward and reverse waves to be individually sampled. See FIG. 3C. This arrangement could be implemented with an analogue or with a digital processor 132. The processor would sample the forward wave in order to determine the transmitted output power and then measure the reverse wave, in response to alteration of the matching network.” Sroka at 3:34-65.</p> <p>“Thus, in addition to receiving a digital indication of the strength of the forward path signal, during transmission, processor 32 is also provided with a digital representation of the signal strength in the return path. Thereafter, having received indications of signal strength for both the forward path and the return path, the processor 32 may calculate the proportion of the forward path signal which is being reflected back from the antenna and returned to the coupler 33. In response to receiving these two indications, the processor 32, is arranged to divide a value representing the returned signal strength by the value representing the forward signal strength, to produce a value which may be identified as a power reflection coefficient. The value representing the forward signal strength may be the transmitted signal level or may be some other measure of the transmitted signal. The purpose of the matching network 31 is to reduce the value of the reflection coefficient. Thus, the processor 32 is arranged to make modifications to the operating characteristics of the matching network 31, recalculate the reflection coefficient, compare the new reflection coefficient against previous reflection coefficients and, in response to said comparisons, make further modifications to the matching network 31.” Sroka at 4:11-33.</p> <p><i>See also</i> Figs. 4, 5A-5D; Sroka at 4:34-5:51; 6:8-7:22; Claims 1-28.</p>
<b>1[d]</b>	said coupler comprising a transformer having a non-magnetic core	Sroka discloses or renders obvious (alone or in combination with the prior art and/or common knowledge of one of ordinary skill) said coupler comprising a transformer having a non-magnetic core.

Claim	Limitation	US 5,778,308 (“Sroka”)
		<p><i>See, e.g.:</i></p> <p>“In a mobile radio telephone, an adaptive impedance matching circuit (25) is positioned between a transmitting power amplifier (24) and a duplexer (18). The adaptive matching circuit (25) matches an antenna (17) to associated electronic circuitry, thereby optimising power transfer in an effort to maintain communication with a base station and to minimise power dissipation within the device itself.” Sroka at Abstract.</p> <p>“In a radio communications device, an antenna is responsible for effecting conversions between electromagnetic signals and electrical signals. Electrical signals having a frequency high enough to be radiated in this way are usually identified as ‘radio frequency’ (RF) signals and it is well known in the art that care must be taken when transmitting and processing signals of this type, given their inherent ability to be re-radiated.” Sroka at 1:11-18.</p> <p style="text-align: center;"><b>Fig.3A.</b></p> 

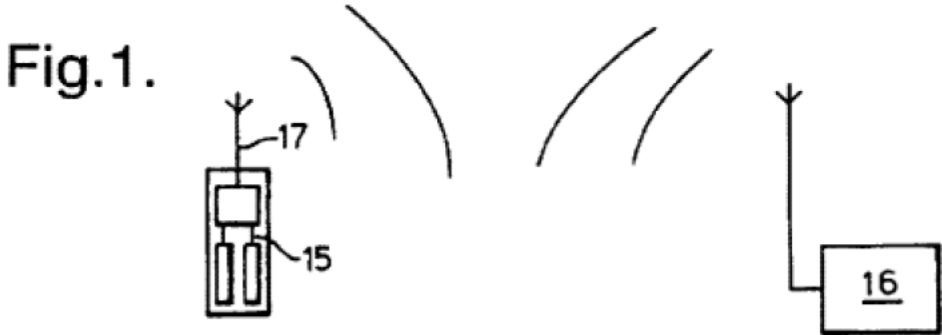
Claim	Limitation	US 5,778,308 ("Sroka")
		<p><b>Fig.3B.</b></p>  <p><b>Fig.3C.</b></p>  <p>“FIGS. 3A-3C detail examples of the adaptive antenna matching circuits shown in FIG. 2, each including a matching network” Sroka at 2:41-43.</p> <p>“The adaptive antenna matching network 25 is detailed in FIG. 3A. Impedance matching is effected by means of an adaptable passive matching network 31 of passive, variable-reactance components, which is adapted in response to signals received from a digital processor 32. Output signals from the output power amplifier 24 are supplied to the matching circuit 31 via a coupler 33, arranged to direct a proportion of said signals to processor 32, via a detector 34 and an analog-to-digital converter 35.” Sroka at 34-42.</p>

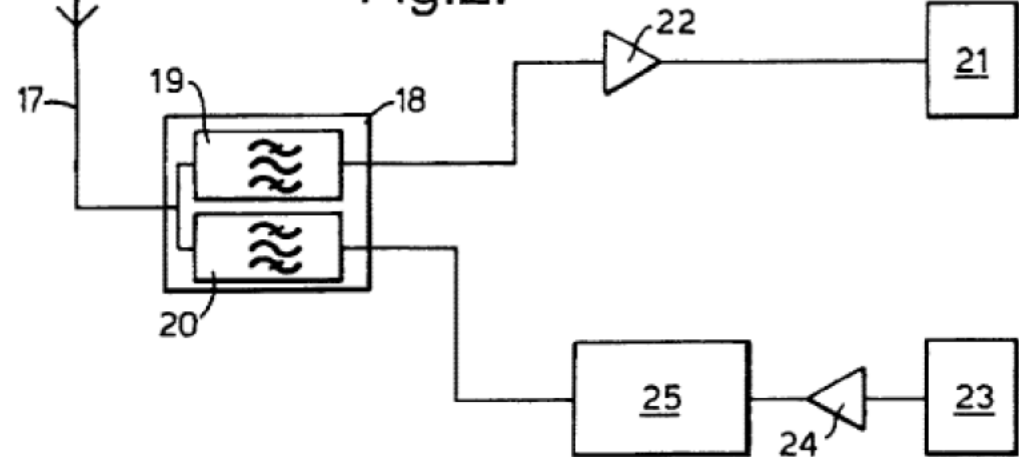


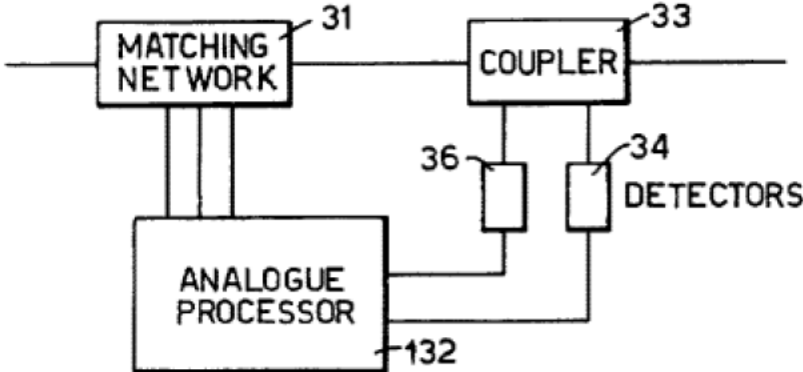
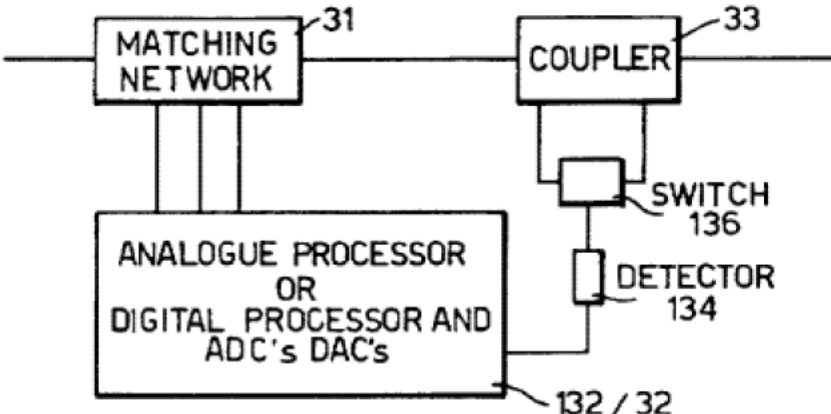
Claim	Limitation	US 5,778,308 ("Sroka")
		<p data-bbox="947 354 1062 402"><b>Fig.4.</b></p>  <p data-bbox="846 808 1913 1133">“The matching network 31 is detailed in FIG. 4, and includes a first variable-reactance circuit 41, a second variable-reactance circuit 42 and a third variable-reactance circuit 43. A first port 44 provides an input port in the forward direction and an output port in the return direction. Similarly, a second port 45 provides an output port in the forward direction and an input port in the return direction. The variable-reactance circuits, 41, 42 and 43 are configured in a pi network. A tee network could, however, be used instead. Each variable-reactance circuit 41, 42, 43 is arranged to receive a respective control signal from control ports 46, 47 and 48 respectively.” Sroka at 4:34-45.</p> <p data-bbox="846 1174 1913 1385">“Each variable-reactance circuit 41, 42 and 43 is arranged so that, in response to a suitable signal being supplied to its respective control port 46, 47 or 48, it may be made resonant and, thereby effectively transparent. Furthermore, control signals may be supplied to said control ports so as to render their respective reactance circuits either capacitive or inductive. Thus, by applying suitable control signals to said control ports, it is possible to adjust the overall reactance of the circuit shown</p>



Claim	Limitation	US 5,778,308 (“Sroka”)
		in FIG. 4 so as to compensate for most reasonable variations which may occur to the characteristic impedance of the antenna.” Sroka at 5:4-14.
1[e]	said transformer communicating the electric or electromagnetic signals to the air	<p>Sroka discloses or renders obvious (alone or in combination with the prior art and/or common knowledge of one of ordinary skill) said transformer communicating the electric or electromagnetic signals to the air.</p> <p>Without conceding that the claims can be read as broadly as Satius reads the claims in its infringement contentions, Sroka also discloses or renders obvious this limitation (alone or in combination with the prior art and/or common knowledge of one of ordinary) under the scope of the claims in Satius’s initial infringement contentions, which contend that this limitation is satisfied when “the electric or electromagnetic signal is communicated into the air via the antenna.” <i>See</i> Satius’s Infringement Contentions, Chart A at 28, Chart B at 33 (Feb. 22, 2019).</p> <p>Without conceding that the claims can be read as broadly as Satius reads the claims in its infringement contentions, Sroka also discloses or renders obvious this limitation (alone or in combination with the prior art and/or common knowledge of one of ordinary) under the scope of the claims in Satius’s initial infringement contentions, which contend that this limitation is satisfied under the doctrine of equivalents when a device uses “an antenna to communicate electric or electromagnetic signals into the air.” <i>See</i> Satius’s Infringement Contentions, Chart A at 30, Chart B at 35 (Feb. 22, 2019).</p> <p><i>See, e.g.:</i></p> <p>“In a mobile radio telephone, an adaptive impedance matching circuit (25) is positioned between a transmitting power amplifier (24) and a duplexer (18). The adaptive matching circuit (25) matches an antenna (17) to associated electronic circuitry, thereby optimising power transfer in an effort to maintain communication</p>

Claim	Limitation	US 5,778,308 ("Sroka")
		<p>with a base station and to minimise power dissipation within the device itself." Sroka at Abstract.</p> <p>"In a radio communications device, an antenna is responsible for effecting conversions between electromagnetic signals and electrical signals. Electrical signals having a frequency high enough to be radiated in this way are usually identified as 'radio frequency' (RF) signals and it is well known in the art that care must be taken when transmitting and processing signals of this type, given their inherent ability to be re-radiated." Sroka at 1:11-18</p> <p><b>Fig.1.</b></p>  <p>"FIG. 1 shows a mobile radio cellular telephone communicating with a base station" Sroka at 2:36-37.</p> <p>"A radio cellular telephone unit 15 is shown in FIG. 1 communicating with a base station 16." Sroka at 2:53-54.</p> <p>"The telephone unit is arranged to communicate with one of a plurality of base stations, such as base station 16, depending upon its geographical location." Sroka at 2:59-61.</p>

Claim	Limitation	US 5,778,308 ("Sroka")
		<p data-bbox="846 237 1929 375">"In this embodiment, antenna matching is effected by considering signals which are being transmitted by the radio telephone. In alternative embodiments, the adaptive antenna matching network or an additional matching network could be provided between input band pass filter 19 and input amplifier 22." Sroka at 3:18-23.</p> <div data-bbox="846 451 1858 954"> <p data-bbox="1199 456 1346 516">Fig.2.</p>  </div> <p data-bbox="846 1011 1929 1263">"The radio telephone unit 15 shown in FIG. 1 is detailed in FIG. 2. Antenna 17 is connected to a duplexing circuit 18, essentially containing a first band pass filter 19 and a second band pass filter 20. Signals received by the antenna 17 are allowed to pass through band pass filter 19 and are, in turn, supplied to an input processing circuit 21 via an input amplifier 22. Similarly, an output circuit 23 generates signals which are supplied to the antenna 17, via an output power amplifier 24, an adaptive antenna matching network 25 and the output band pass filter 20." Sroka at 3:8-17.</p> <p data-bbox="846 1304 1929 1408">"In another alternative embodiment, the adaptive antenna matching circuit 25 may be provided between the antenna 17 and the duplexer 18, allowing adaptation to be effected in response to both transmitted and received signals." Sroka at 3:25-29.</p>

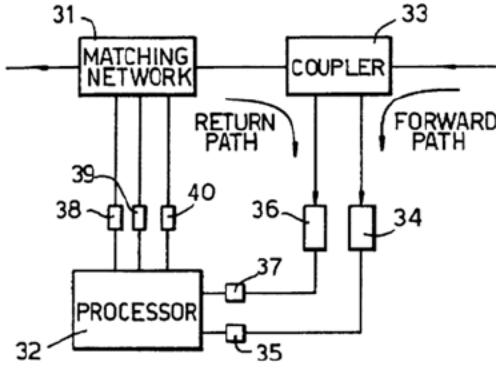
Claim	Limitation	US 5,778,308 ("Sroka")
		<p data-bbox="856 342 1045 402"><b>Fig.3B.</b></p>  <p data-bbox="856 873 1045 933"><b>Fig.3C.</b></p> 

Claim	Limitation	US 5,778,308 (“Sroka”)
		<p>“The adaptive antenna matching network 25 is detailed in FIG. 3A. Impedance matching is effected by means of an adaptable passive matching network 31 of passive, variable-reactance components, which is adapted in response to signals received from a digital processor 32. Output signals from the output power amplifier 24 are supplied to the matching circuit 31 via a coupler 33, arranged to direct a proportion of said signals to processor 32, via a detector 34 and an analog-to-digital converter 35. Detector 34 essentially consists of a diode and is arranged to generate a voltage proportional to the power of the signal received from the coupler 33. This voltage is in turn supplied to the analog to digital converter 35, arranged to supply a digital representation of said voltage to the processor 32. Thus, the coupler 33, the detector 34 and the analog-to-digital converter 35 provide a digital indication to the processor 32 of the power of the forward transmission signals supplied to the antenna.” Sroka at 3:34-51.</p> <p>“Thus, in addition to forward-path signals being transmitted through coupler 33 from its right side to its left side and thereafter on to the antenna, signals will also be reflected back from the antenna and pass through coupler 33 from its left side to its right side.” 4:2-7</p>
<b>1[f]</b>	said coupler matching the output impedance of the transmitter to the characteristic impedance of the air.	<p>Sroka discloses or renders obvious (alone or in combination with the prior art and/or common knowledge of one of ordinary skill) said coupler matching the output impedance of the transmitter to the characteristic impedance of the air.</p> <p>Without conceding that the claims can be read as broadly as Satius reads the claims in its infringement contentions, Sroka also discloses or renders obvious this limitation (alone or in combination with the prior art and/or common knowledge of one of ordinary) under the scope of the claims in Satius’s initial infringement contentions, which contend that this limitation is satisfied because “an antenna tuner ... is a coupler that matches the impedance of the air to the impedance of the transmitter.” <i>See</i> Satius’s Infringement Contentions, Chart A at 37, Chart B at 42 (Feb. 22, 2019).</p>

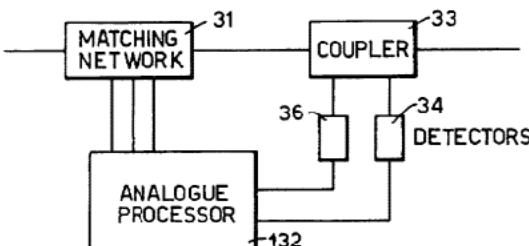
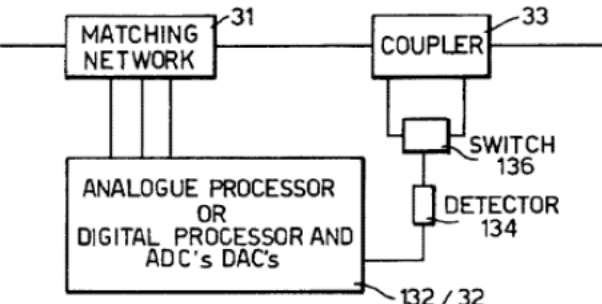
Claim	Limitation	US 5,778,308 (“Sroka”)
		<p>Without conceding that the claims can be read as broadly as Satius reads the claims in its infringement contentions, Sroka also discloses or renders obvious this limitation (alone or in combination with the prior art and/or common knowledge of one of ordinary) under the scope of the claims in Satius’s initial infringement contentions, which contend that this limitation is satisfied under the doctrine of equivalents when a device “match[es] the impedance of the antenna to the characteristic impedance of air.” <i>See</i> Satius’s Infringement Contentions, Chart A at 38, Chart B at 43 (Feb. 22, 2019).</p> <p><i>See, e.g.:</i></p> <p>“In a mobile radio telephone, an adaptive impedance matching circuit (25) is positioned between a transmitting power amplifier (24) and a duplexer (18). The adaptive matching circuit (25) matches an antenna (17) to associated electronic circuitry, thereby optimising power transfer in an effort to maintain communication with a base station and to minimise power dissipation within the device itself.” Sroka at Abstract.</p> <p>“An important parameter to consider, when designing an antenna, is characteristic impedance and in order to effect maximum power transfer between an antenna and, circuitry connected thereto, it is important to ensure that the characteristic impedance of the antenna is matched by the characteristic impedance of the associated circuitry. In practice, circuitry will be designed to present the required impedance to the antenna which, in theory, should achieve maximum power transfer. However, the characteristic impedance of the antenna will also vary with operating conditions. For example, mobile cellular telephones are often placed on table tops, close to a vehicle facia and, when in operation, close to a user. Each of these positions will result in modifications being made to the characteristic impedance of the antenna which may interfere with the normal operation of the telephone to a greater or lesser extent.” Sroka at 1:19-35.</p>



Claim	Limitation	US 5,778,308 ("Sroka")
		<p>“When a mis-match occurs between the characteristic impedance of an antenna and the impedance of associated circuitry, the transfer of power between these two devices will be less than optimum. Thus, while transmitting, signals generated by an output power amplifier will be supplied to the antenna. However, given that a mis-match is present, not all of the signal power will be transmitted by the antenna and a proportion will be reflected back to the amplifier.” Sroka at 1:36-43.</p> <p>“It is an object of the present invention to provide an improved adaptive antenna matching network. According to an aspect of the present invention, there is provided an adaptive antenna matching network in which the impedance of said matching network is adjusted in response to the operating environment of the antenna comprising means for directly measuring the level of reflected signals and means responsive thereto for adjusting the impedance of the matching network. Thus, in the present invention, adaptation is controlled directly in response to the level of signals being reflected due directly to antenna mis-match.” Sroka at 2:15-27.</p> <p style="text-align: center;"><b>Fig.2.</b></p>

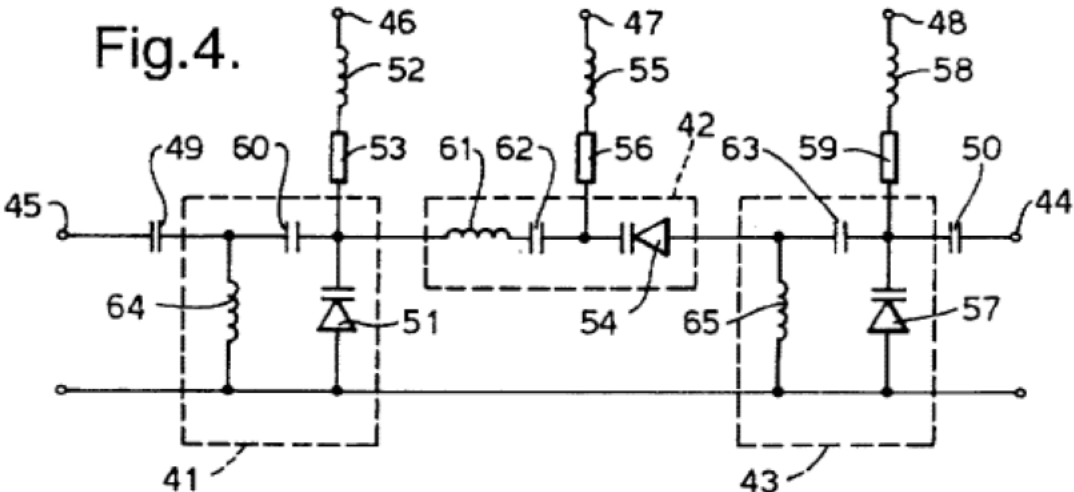
Claim	Limitation	US 5,778,308 (“Sroka”)
		<p>“The radio telephone unit 15 shown in FIG. 1 is detailed in FIG. 2. Antenna 17 is connected to a duplexing circuit 18, essentially containing a first band pass filter 19 and a second band pass filter 20. Signals received by the antenna 17 are allowed to pass through band pass filter 19 and are, in turn, supplied to an input processing circuit 21 via an input amplifier 22. Similarly, an output circuit 23 generates signals which are supplied to the antenna 17, via an output power amplifier 24, an adaptive antenna matching network 25 and the output band pass filter 20.” Sroka at 3:8-17.</p> <p>“In this embodiment, antenna matching is effected by considering signals which are being transmitted by the radio telephone. In alternative embodiments, the adaptive antenna matching network or an additional matching network could be provided between input band pass filter 19 and input amplifier 22. In another alternative embodiment, the adaptive antenna matching circuit 25 may be provided between the antenna 17 and the duplexer 18, allowing adaptation to be effected in response to both transmitted and received signals.” Sroka at 3:18-29.</p> <p style="text-align: center;"><b>Fig.3A.</b></p> 



Claim	Limitation	US 5,778,308 ("Sroka")
		<p><b>Fig.3B.</b></p>  <p><b>Fig.3C.</b></p>  <p>“FIGS. 3A-3C detail examples of the adaptive antenna matching circuits shown in FIG. 2, each including a matching network” Sroka at 2:41-43.</p> <p>“The adaptive antenna matching network 25 is detailed in FIG. 3A. Impedance matching is effected by means of an adaptable passive matching network 31 of passive, variable-reactance components, which is adapted in response to signals received from a digital processor 32. Output signals from the output power amplifier 24 are supplied to the matching circuit 31 via a coupler 33, arranged to direct a proportion of said signals to processor 32, via a detector 34 and an analog-to-digital converter 35. Detector 34 essentially consists of a diode and is arranged to generate a voltage proportional to the power of the signal received from the coupler 33. This</p>

Claim	Limitation	US 5,778,308 (“Sroka”)
		<p>voltage is in turn supplied to the analog to digital converter 35, arranged to supply a digital representation of said voltage to the processor 32. Thus, the coupler 33, the detector 34 and the analog-to-digital converter 35 provide a digital indication to the processor 32 of the power of the forward transmission signals supplied to the antenna. As the radio telephone typically determines the transmission level a digital indication of the transmission level could be provided without direct measurement being necessary.</p> <p>An analogue processor could be used instead of the digital processor 32. In this case no A/D converters 35, 37 would be necessary. See FIG. 3B. As a further option, a single detector 134 could replace the two detectors 34, 36. A switch 136 would then be provided to enable forward and reverse waves to be individually sampled. See FIG. 3C. This arrangement could be implemented with an analogue or with a digital processor 132. The processor would sample the forward wave in order to determine the transmitted output power and then measure the reverse wave, in response to alteration of the matching network.” Sroka at 3:34-65.</p> <p>“The coupler 33 is arranged to direct a proportion of these return-path signals to the processor 32, via a second detector 36, substantially similar to the first detector 34, and a second analog to digital converter 37, substantially similar to the first analogue to digital converter 35. Thus, in addition to receiving a digital indication of the strength of the forward path signal, during transmission, processor 32 is also provided with a digital representation of the signal strength in the return path. Thereafter, having received indications of signal strength for both the forward path and the return path, the processor 32 may calculate the proportion of the forward path signal which is being reflected back from the antenna and returned to the coupler 33. In response to receiving these two indications, the processor 32, is arranged to divide a value representing the returned signal strength by the value representing the forward signal strength, to produce a value which may be identified as a power reflection coefficient. The value representing the forward signal strength may be the transmitted signal level or may be some other measure of the transmitted signal. The purpose of the matching network 31 is to reduce the value of the</p>

Claim	Limitation	US 5,778,308 (“Sroka”)
		<p>reflection coefficient. Thus, the processor 32 is arranged to make modifications to the operating characteristics of the matching network 31, recalculate the reflection coefficient, compare the new reflection coefficient against previous reflection coefficients and, in response to said comparisons, make further modifications to the matching network 31.” Sroka at 4:7-33.</p> <p><i>See also</i> Figs. 4, 5A-5D; Sroka at 4:34-5:51; 6:8-7:22; Claims 1-28.</p>
<b>11[pre]</b>	The communications apparatus of claim 1 wherein the transformer comprises:	<i>See</i> claim 1, above.
<b>11[a]</b>	a first conductive plate;	<p>Sroka discloses or renders obvious (alone or in combination with the prior art and/or common knowledge of one of ordinary skill) a first conductive plate.</p> <p><i>See, e.g.:</i></p>

Claim	Limitation	US 5,778,308 ("Sroka")
		<p>"Signal port 45 is dc isolated from variable-reactance circuit 41 by means of a dc de-coupling capacitor 49. Similarly, the capacitor 50 dc isolates signal port 44 from the variable-reactance circuit 43." Sroka at 4:51-54.</p> <p>"As clearly shown in FIG. 4, capacitor 49 is in series with a capacitor 60, which is in turn in series with an inductor 61, a capacitor 62 and varactor diode 54. On the other side of said varactor diode, a serial connection is made with a further capacitor 63 which is itself in series with capacitor 50." Sroka at 4:62-67.</p>
11[b]	a second conductive plate placed underneath and spaced apart from the first conductive plate	<p>Sroka discloses or renders obvious (alone or in combination with the prior art and/or common knowledge of one of ordinary skill) a second conductive plate placed underneath and spaced apart from the first conductive plate.</p> <p>See, e.g.:</p>  <p>"Signal port 45 is dc isolated from variable-reactance circuit 41 by means of a dc de-coupling capacitor 49. Similarly, the capacitor 50 dc isolates signal port 44 from the variable-reactance circuit 43." Sroka at 4:51-54.</p>

Claim	Limitation	US 5,778,308 (“Sroka”)
		“As clearly shown in FIG. 4, capacitor 49 is in series with a capacitor 60, which is in turn in series with an inductor 61, a capacitor 62 and varactor diode 54. On the other side of said varactor diode, a serial connection is made with a further capacitor 63 which is itself in series with capacitor 50.” Sroka at 4:62-67.
<b>11[c]</b>	wherein the first conductive plate is matched to the characteristic impedance of the air at a preselected bandwidth.	Sroka discloses or renders obvious (alone or in combination with the prior art and/or common knowledge of one of ordinary skill) wherein the first conductive plate is matched to the characteristic impedance of the air at a preselected bandwidth.  <i>See citations for 1[f].</i>
<b>18[pre]</b>	The communications apparatus of claim 11	<i>See claim 11, above.</i>
<b>18[a]</b>	wherein the first conductive plate and the second conductive plate are formed directly in a chip by deposition of metallic layers onto the chip.	Sroka renders obvious (alone or in combination with the prior art and/or common knowledge of one of ordinary skill) wherein the first conductive plate and the second conductive plate are formed directly in a chip by deposition of metallic layers onto the chip.  <i>See claim 11, above.</i>

# EXHIBIT G

**From:** [Hedvat, Shannon H.](#)  
**To:** [Bieluch, Brian](#); [Andre, Paul](#); [Kobialka, Lisa](#); [Proctor, Greg](#); [Robertson, Sean](#); [apoff@ycst.com](mailto:apoff@ycst.com); [pkraman@ycst.com](mailto:pkraman@ycst.com); [Rainey, Richard](#); [Wilson, Paul](#); [Flynn, Patrick N](#); [Nieberg, Gregory](#); [asilverstein@potteranderson.com](mailto:asilverstein@potteranderson.com)  
**Subject:** RE: Satius Holding, Inc. v. Samsung Electronics Co., Ltd., et al. - Case No. 18-cv-00580-MN-CJB - Service  
**Date:** Monday, July 22, 2019 7:59:12 PM

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Brian,

Your e-mail misrepresents the parties' meet and confer last week. Nonetheless, as we explained during the meet and confer, we continue to disagree with your position regarding Satius' interrogatory responses. We reiterate the information, and objections, set forth in our responses and will not be supplementing them at this time.

Regards,  
Shannon

**Shannon H. Hedvat**  
Associate

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**From:** Bieluch, Brian [[bbieluch@cov.com](mailto:bbieluch@cov.com)]  
**Sent:** Monday, July 22, 2019 7:36 PM  
**To:** Hedvat, Shannon H.; Andre, Paul; Kobialka, Lisa; Proctor, Greg; Robertson, Sean; [apoff@ycst.com](mailto:apoff@ycst.com); [pkraman@ycst.com](mailto:pkraman@ycst.com); Rainey, Richard; Wilson, Paul; Flynn, Patrick N; Nieberg, Gregory; [asilverstein@potteranderson.com](mailto:asilverstein@potteranderson.com); Samsung-Satius  
**Subject:** [EXTERNAL] RE: Satius Holding, Inc. v. Samsung Electronics Co., Ltd., et al. - Case No. 18-cv-00580-MN-CJB - Service

Dear Satius team:

Regarding the non-responsive interrogatory responses Satius served on July 15 after receiving an extension, as noted, it took several days to get Satius to meet and confer regarding its non-responses. At our meet and confer conference last Thursday, Satius expressed the view that Satius simply will not respond to contention interrogatories in this case and instead Satius expects to keep its positions on invalidity and damages undisclosed until expert reports.

Satius could not identify any authority for its position. This was concerning, at the outset, as Satius appears to have simply declined to participate in discovery without having authority for doing so. Samsung noted at our meet and confer conference the Court's decision in *Pragmatus AV LLC v.*

*Yahoo! Inc.*, in which the Court compelled a full response to an interrogatory requesting that a patentee provide a claim/element chart responding completely to the defendant's invalidity positions. Samsung further noted that the interrogatory at issue there is also, with small changes, pending with Satius. In compelling participation in contention discovery, the Court in *Pragmatus* cited, among other things, language in the Scheduling Order in that case that is on all fours with the Scheduling Order in this case.

That is, Paragraph 8(d) of the Scheduling Order indicates that the number of interrogatories to be served in the case includes "contention" interrogatories. The Scheduling Order then provides that "[t]he Court encourages the parties to serve and respond to contention interrogatories early in the case."

In this case, which has been pending for over a year, Satius has served contention interrogatories on Samsung, including with respect to Samsung's responses to Satius's infringement contentions, and yet Satius will not provide its own responses to Samsung's contention discovery. Satius has thus gained a significant tactical advantage and continues to do so by withholding its contentions, including with respect to the facts underlying those contentions.

On our call on last Thursday, we had asked Satius to state its final position on this issue, given that the deadline for service of interrogatory responses had passed and given that we had provided multiple opportunities for Satius to agree to supplement and Satius had declined to do so. We had asked that Satius get back to us by 6:00 p.m. on Friday. Satius requested that it be given until 6:00 p.m. on Monday to state its final position.

Satius's requested additional time has now passed, without counsel for Satius even writing to follow up at all. We thus appear to be at an impasse.

Regards,

Brian

**Brian Bieluch**

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**From:** Bieluch, Brian

**Sent:** Thursday, July 18, 2019 1:44 PM



**To:** 'Hedvat, Shannon H.' <SHedvat@KRAMERLEVIN.com>; Andre, Paul <PAndre@KRAMERLEVIN.com>; Kobialka, Lisa <LKobialka@KRAMERLEVIN.com>; Proctor, Greg <GProctor@KRAMERLEVIN.com>; Robertson, Sean <SRobertson@KRAMERLEVIN.com>; apoff@ycst.com; pkraman@ycst.com; Rainey, Richard <RRainey@cov.com>; Wilson, Paul <pwilson@cov.com>; Flynn, Patrick N <PFlynn@cov.com>; Nieberg, Gregory <gnieberg@cov.com>; asilverstein@potteranderson.com; 'samsung-satius@cov.com' <samsung-satius@cov.com>  
**Subject:** RE: Satius Holding, Inc. v. Samsung Electronics Co., Ltd., et al. - Case No. 18-cv-00580-MN-CJB - Service

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Toll Number (U.S. and Canada): +1-830-221-9129

---

**From:** Hedvat, Shannon H. <[SHedvat@KRAMERLEVIN.com](mailto:SHedvat@KRAMERLEVIN.com)>

**Sent:** Thursday, July 18, 2019 12:26 PM

**To:** Bieluch, Brian <[bbieluch@cov.com](mailto:bbieluch@cov.com)>; Andre, Paul <[PAndre@KRAMERLEVIN.com](mailto:PAndre@KRAMERLEVIN.com)>; Kobialka, Lisa <[LKobialka@KRAMERLEVIN.com](mailto:LKobialka@KRAMERLEVIN.com)>; Proctor, Greg <[GProctor@KRAMERLEVIN.com](mailto:GProctor@KRAMERLEVIN.com)>; Robertson, Sean <[SRobertson@KRAMERLEVIN.com](mailto:SRobertson@KRAMERLEVIN.com)>; apoff@ycst.com; pkraman@ycst.com; Rainey, Richard <[RRainey@cov.com](mailto:RRainey@cov.com)>; Wilson, Paul <[pwilson@cov.com](mailto:pwilson@cov.com)>; Flynn, Patrick N <[PFlynn@cov.com](mailto:PFlynn@cov.com)>; Nieberg, Gregory <[gnieberg@cov.com](mailto:gnieberg@cov.com)>; asilverstein@potteranderson.com

**Subject:** RE: Satius Holding, Inc. v. Samsung Electronics Co., Ltd., et al. - Case No. 18-cv-00580-MN-CJB - Service

Counsel,

We can accommodate your request for a 4:30pm meet and confer. Please provide a dial-in for the call.

Shannon

**Shannon H. Hedvat**

Associate

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**From:** Bieluch, Brian <[bbieluch@cov.com](mailto:bbieluch@cov.com)>  
**Sent:** Thursday, July 18, 2019 11:04 AM  
**To:** Hedvat, Shannon H. <[SHedvat@KRAMERLEVIN.com](mailto:SHedvat@KRAMERLEVIN.com)>; Andre, Paul <[PAndre@KRAMERLEVIN.com](mailto:PAndre@KRAMERLEVIN.com)>; Kobialka, Lisa <[LKobialka@KRAMERLEVIN.com](mailto:LKobialka@KRAMERLEVIN.com)>; Proctor, Greg <[GProctor@KRAMERLEVIN.com](mailto:GProctor@KRAMERLEVIN.com)>; Robertson, Sean <[SRobertson@KRAMERLEVIN.com](mailto:SRobertson@KRAMERLEVIN.com)>; [apoff@ycst.com](mailto:apoff@ycst.com); [pkraman@ycst.com](mailto:pkraman@ycst.com); Rainey, Richard <[RRainey@cov.com](mailto:RRainey@cov.com)>; Wilson, Paul <[pwilson@cov.com](mailto:pwilson@cov.com)>; Flynn, Patrick N <[PFlynn@cov.com](mailto:PFlynn@cov.com)>; Nieberg, Gregory <[gnieberg@cov.com](mailto:gnieberg@cov.com)>; [asilverstein@potteranderson.com](mailto:asilverstein@potteranderson.com); Samsung-Satius <[Samsung-Satius@cov.com](mailto:Samsung-Satius@cov.com)>  
**Subject:** [EXTERNAL] RE: Satius Holding, Inc. v. Samsung Electronics Co., Ltd., et al. - Case No. 18-cv-00580-MN-CJB - Service

Satius team -- For the meet and confer conference regarding Satius's interrogatory responses, can we do a call at 4:30 p.m. Eastern today?

---

**From:** Bieluch, Brian  
**Sent:** Wednesday, July 17, 2019 12:49 PM  
**To:** 'Hedvat, Shannon H.' <[SHedvat@KRAMERLEVIN.com](mailto:SHedvat@KRAMERLEVIN.com)>; Andre, Paul <[PAndre@KRAMERLEVIN.com](mailto:PAndre@KRAMERLEVIN.com)>; Kobialka, Lisa <[LKobialka@KRAMERLEVIN.com](mailto:LKobialka@KRAMERLEVIN.com)>; Proctor, Greg <[GProctor@KRAMERLEVIN.com](mailto:GProctor@KRAMERLEVIN.com)>; Robertson, Sean <[SRobertson@KRAMERLEVIN.com](mailto:SRobertson@KRAMERLEVIN.com)>; [apoff@ycst.com](mailto:apoff@ycst.com); [pkraman@ycst.com](mailto:pkraman@ycst.com); Rainey, Richard <[RRainey@cov.com](mailto:RRainey@cov.com)>; Wilson, Paul <[pwilson@cov.com](mailto:pwilson@cov.com)>; Flynn, Patrick N <[PFlynn@cov.com](mailto:PFlynn@cov.com)>; Nieberg, Gregory <[gnieberg@cov.com](mailto:gnieberg@cov.com)>; [asilverstein@potteranderson.com](mailto:asilverstein@potteranderson.com); 'samsung-satius@cov.com' <[samsung-satius@cov.com](mailto:samsung-satius@cov.com)>  
**Subject:** RE: Satius Holding, Inc. v. Samsung Electronics Co., Ltd., et al. - Case No. 18-cv-00580-MN-CJB - Service

Dear Shannon:

At the outset of this case, Samsung noted the vague nature of Satius's allegations and Satius's having declined to address during meet-and-confer discussions what, essentially, this case is about on a technical level. In the first conference with the Court in early December, when the Court made a similar inquiry as to whether "there [is] anything the Plaintiff wants to say about what you think this dispute might really be about and what might come up later between the parties based on what you understand now," Satius responded that "it's hard to know . . ." and requested discovery.

With discovery now having significantly been underway for many months, Satius has served contention discovery on Samsung asking for Samsung's response to Satius's vague infringement positions. Satius has done so while simultaneously declining to respond to Samsung's discovery requesting Satius's response to Samsung's invalidity positions.

We have repeatedly asked Satius to engage in the meet-and-confer process, as to the non-responses Satius served for several of Samsung's interrogatories, as set out below. Without stating

a reason as to why no lawyer on your team is unavailable, Satius has declined to meet and confer on Tuesday and Wednesday. It appears that Satius will not meet and confer regarding Satius's discovery responses unless and until time has passed in the case such that Samsung's interrogatory responses have been served.

In an effort to get the now-overdue discovery Samsung has requested as efficiently as possible, we proposed that Satius supplement its interrogatory responses within three weeks. We further proposed that Samsung serve its substantive non-infringement responses at approximately the same time that Satius serves its substantive responses to Samsung's interrogatories, so that no tactical advantage would be gained by Satius. Satius has declined this below, and has instead indicated that it expects Samsung to serve its interrogatory responses today. To be clear, this compounds the prejudice caused by Satius's self-granted extension to responding to Samsung's interrogatories. Satius will have Samsung's non-infringement responses, but Samsung will not have Satius's invalidity responses. Samsung respectfully submits that a remedy for Satius's actions should be created based upon Satius both having granted itself an extension of unknown duration for Samsung's interrogatory responses and further in light of Satius having insisted that Samsung nonetheless provide its own substantive responses, conveying a tactical advantage upon Satius. All of these actions by Satius make this case significantly stand out from the norm.

Regarding your last-minute effort to raise a discovery issue with respect to Samsung, you reference correspondence from many months ago. We responded to that correspondence long ago. If there is an issue you would like us to address, please set it out and we will address it.

Regards,

Brian

**Brian Bieluch**

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**From:** Hedvat, Shannon H. <[SHedvat@KRAMERLEVIN.com](mailto:SHedvat@KRAMERLEVIN.com)>

**Sent:** Wednesday, July 17, 2019 11:27 AM

**To:** Bieluch, Brian <[bbieluch@cov.com](mailto:bbieluch@cov.com)>; Andre, Paul <[PAndre@KRAMERLEVIN.com](mailto:PAndre@KRAMERLEVIN.com)>; Kobialka, Lisa <[LKobialka@KRAMERLEVIN.com](mailto:LKobialka@KRAMERLEVIN.com)>; Proctor, Greg <[GProctor@KRAMERLEVIN.com](mailto:GProctor@KRAMERLEVIN.com)>; Robertson, Sean <[SRobertson@KRAMERLEVIN.com](mailto:SRobertson@KRAMERLEVIN.com)>; [apoff@ycst.com](mailto:apoff@ycst.com); [pkraman@ycst.com](mailto:pkraman@ycst.com); Rainey, Richard <[RRainey@cov.com](mailto:RRainey@cov.com)>; Wilson, Paul <[pwilson@cov.com](mailto:pwilson@cov.com)>; Flynn, Patrick N <[PFlynn@cov.com](mailto:PFlynn@cov.com)>; Nieberg, Gregory <[gnieberg@cov.com](mailto:gnieberg@cov.com)>; [asilverstein@potteranderson.com](mailto:asilverstein@potteranderson.com)

**Subject:** RE: Satius Holding, Inc. v. Samsung Electronics Co., Ltd., et al. - Case No. 18-cv-00580-MN-CJB - Service

Brian,

Despite your baseless accusations, Satius has not “declined to join” a meet and confer. Rather, you first requested, late on Monday evening, that we meet and confer this week and we responded with our team’s first availability which is Thursday. Please let us know if you are available at 2pm EST tomorrow for the meet and confer.

With respect to the deficiencies in your document productions, we refer you to our previous correspondence including e-mails dated March 20.

Regards,  
Shannon

**Shannon H. Hedvat**  
Associate

Kramer Levin Naftalis & Frankel LLP  
1177 Avenue of the Americas, New York, New York 10036  
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---

**From:** Bieluch, Brian <[bbieluch@cov.com](mailto:bbieluch@cov.com)>

**Sent:** Tuesday, July 16, 2019 5:12 PM

**To:** Hedvat, Shannon H. <[SHedvat@KRAMERLEVIN.com](mailto:SHedvat@KRAMERLEVIN.com)>; Andre, Paul <[PAndre@KRAMERLEVIN.com](mailto:PAndre@KRAMERLEVIN.com)>; Kobialka, Lisa <[LKobialka@KRAMERLEVIN.com](mailto:LKobialka@KRAMERLEVIN.com)>; Proctor, Greg <[GProctor@KRAMERLEVIN.com](mailto:GProctor@KRAMERLEVIN.com)>; Robertson, Sean <[SRobertson@KRAMERLEVIN.com](mailto:SRobertson@KRAMERLEVIN.com)>; [apoff@ycst.com](mailto:apoff@ycst.com); [pkraman@ycst.com](mailto:pkraman@ycst.com); Rainey, Richard <[RRainey@cov.com](mailto:RRainey@cov.com)>; Wilson, Paul <[pwilson@cov.com](mailto:pwilson@cov.com)>; Flynn, Patrick N <[PFlynn@cov.com](mailto:PFlynn@cov.com)>; Nieberg, Gregory <[gnieberg@cov.com](mailto:gnieberg@cov.com)>; [asilverstein@potteranderson.com](mailto:asilverstein@potteranderson.com); Samsung-StClair <[Samsung-StClair@cov.com](mailto:Samsung-StClair@cov.com)>

**Subject:** [EXTERNAL] RE: Satius Holding, Inc. v. Samsung Electronics Co., Ltd., et al. - Case No. 18-cv-00580-MN-CJB - Service

Shannon,

Satius had six weeks to draft interrogatory responses, and then served non-responses. We have requested a meet and confer conference, and Satius declined to join. You now state that there

are deficiencies in Samsung's production, but you do not identify any. Please immediately identify the issue you seek to reference.

We have been available all day today to meet and confer, and yet no one from the Satius side will agree to join a call, without explanation. Once again, we request that Satius join a meet and confer conference tomorrow. We are available at 1:00 p.m. Eastern. If that does not work, let us know what works tomorrow and give us some notice, and we'll join. If we cannot get someone on the phone tomorrow after Satius has had six weeks in which it prepared non-responses to interrogatories, and has had multiple days to join a meet-and-confer, we will understand that Satius is declining to engage in the meet and confer process.

Regards,

Brian

**Brian Bieluch**

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**From:** Hedvat, Shannon H. <[SHedvat@KRAMERLEVIN.com](mailto:SHedvat@KRAMERLEVIN.com)>

**Sent:** Tuesday, July 16, 2019 4:52 PM

**To:** Bieluch, Brian <[bbieluch@cov.com](mailto:bbieluch@cov.com)>; Andre, Paul <[PAAndre@KRAMERLEVIN.com](mailto:PAAndre@KRAMERLEVIN.com)>; Kobialka, Lisa <[LKobialka@KRAMERLEVIN.com](mailto:LKobialka@KRAMERLEVIN.com)>; Proctor, Greg <[GProctor@KRAMERLEVIN.com](mailto:GProctor@KRAMERLEVIN.com)>; Robertson, Sean <[SRobertson@KRAMERLEVIN.com](mailto:SRobertson@KRAMERLEVIN.com)>; [apoff@ycst.com](mailto:apoff@ycst.com); [pkraman@ycst.com](mailto:pkraman@ycst.com); Rainey, Richard <[RRainey@cov.com](mailto:RRainey@cov.com)>; Wilson, Paul <[pwilson@cov.com](mailto:pwilson@cov.com)>; Flynn, Patrick N <[PFlynn@cov.com](mailto:PFlynn@cov.com)>; Nieberg, Gregory <[gnieberg@cov.com](mailto:gnieberg@cov.com)>; [asilverstein@potteranderson.com](mailto:asilverstein@potteranderson.com)

**Subject:** RE: Satius Holding, Inc. v. Samsung Electronics Co., Ltd., et al. - Case No. 18-cv-00580-MN-CJB - Service

Brian,

We are in receipt of your e-mail from last night and are reviewing your allegations. Your demand for an immediate meet and confer at Samsung's convenience and then subsequent statement that "we appear to be at an impasse" is counterproductive and contrary to any type of cooperation and good faith required for a meet and confer.

We are available to meet and confer on Thursday afternoon. If that works for your team, please let us know. Please also be prepared to discuss the ongoing deficiencies in Samsung's document productions.

We do not agree to any further extension on Samsung's interrogatory responses.

Regards,  
Shannon

**Shannon H. Hedvat**  
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---

**From:** Bieluch, Brian <[bbieluch@cov.com](mailto:bbieluch@cov.com)>  
**Sent:** Tuesday, July 16, 2019 1:27 PM  
**To:** Andre, Paul <[PAAndre@KRAMERLEVIN.com](mailto:PAAndre@KRAMERLEVIN.com)>; Kobialka, Lisa <[LKobialka@KRAMERLEVIN.com](mailto:LKobialka@KRAMERLEVIN.com)>; Hedvat, Shannon H. <[SHedvat@KRAMERLEVIN.com](mailto:SHedvat@KRAMERLEVIN.com)>; Proctor, Greg <[GProctor@KRAMERLEVIN.com](mailto:GProctor@KRAMERLEVIN.com)>; Robertson, Sean <[SRobertson@KRAMERLEVIN.com](mailto:SRobertson@KRAMERLEVIN.com)>; [apoff@ycst.com](mailto:apoff@ycst.com); [pkraman@ycst.com](mailto:pkraman@ycst.com); Rainey, Richard <[RRainey@cov.com](mailto:RRainey@cov.com)>; Wilson, Paul <[pwilson@cov.com](mailto:pwilson@cov.com)>; Flynn, Patrick N <[PFlynn@cov.com](mailto:PFlynn@cov.com)>; Nieberg, Gregory <[gnieberg@cov.com](mailto:gnieberg@cov.com)>; [asilverstein@potteranderson.com](mailto:asilverstein@potteranderson.com)  
**Cc:** Samsung-Satius <[Samsung-Satius@cov.com](mailto:Samsung-Satius@cov.com)>  
**Subject:** [EXTERNAL] RE: Satius Holding, Inc. v. Samsung Electronics Co., Ltd., et al. - Case No. 18-cv-00580-MN-CJB - Service

Dear Satius team:

Regarding Satius's non-responsive interrogatory responses, counsel for Samsung dialed in to the call proposed below, but no one from Satius joined. Nor did we hear any response from Satius.

It is very difficult to understand what is going on with Satius here. Satius served interrogatories on Samsung regarding Samsung's non-infringement positions, and yet Satius will not provide any response to Samsung's interrogatories regarding Satius's invalidity positions. This is creating a real problem in the case, in terms of the one-sided nature of Satius's actions and the non-responsiveness we are seeing.

From Samsung's perspective, we are attempting to get basic discovery about the case and are getting no response. We have put a great deal of resources into our contentions. We now are not only missing substantive responses from Satius -- we cannot get someone from Satius on the phone to describe what is going on.

To minimize the burden on the Court and focus the case on getting the discovery needed, we would be willing to provide three weeks for Satius to supplement the responses it served below in good faith, with a three-week extension for Samsung's responses (presently scheduled to be served tomorrow). If Satius is amenable to this proposal, please let us know by 6:00 p.m. Eastern today. Otherwise, we appear to be at an impasse.

Regards,

Brian

**Brian Bieluch**

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**From:** Bieluch, Brian <[bbieluch@cov.com](mailto:bbieluch@cov.com)>

**Sent:** Monday, July 15, 2019 7:53 PM

**To:** Andre, Paul <[PAAndre@KRAMERLEVIN.com](mailto:PAAndre@KRAMERLEVIN.com)>; Kobialka, Lisa <[LKobialka@KRAMERLEVIN.com](mailto:LKobialka@KRAMERLEVIN.com)>; Hedvat, Shannon H. <[SHedvat@KRAMERLEVIN.com](mailto:SHedvat@KRAMERLEVIN.com)>; 'Proctor, Greg' <[GProctor@KRAMERLEVIN.com](mailto:GProctor@KRAMERLEVIN.com)>; Robertson, Sean <[SRobertson@KRAMERLEVIN.com](mailto:SRobertson@KRAMERLEVIN.com)>; [apoff@ycst.com](mailto:apoff@ycst.com); [pkraman@ycst.com](mailto:pkraman@ycst.com); Rainey, Richard <[RRainey@cov.com](mailto:RRainey@cov.com)>; Wilson, Paul <[pwilson@cov.com](mailto:pwilson@cov.com)>; Flynn, Patrick N <[PFlynn@cov.com](mailto:PFlynn@cov.com)>; Nieberg, Gregory <[gnieberg@cov.com](mailto:gnieberg@cov.com)>; [asilverstein@potteranderson.com](mailto:asilverstein@potteranderson.com)

**Cc:** Samsung-Satius <[Samsung-Satius@cov.com](mailto:Samsung-Satius@cov.com)>

**Subject:** RE: Satius Holding, Inc. v. Samsung Electronics Co., Ltd., et al. - Case No. 18-cv-00580-MN-CJB - Service

Dear Satius Team:

Regarding Satius's interrogatory responses, Satius has made no effort to set out its contentions regarding several key issues in the case and has provided numerous non-responses. This is very disappointing to see, as Samsung has invested a great deal of resources in setting out Samsung's contentions.

For Samsung's Interrogatory No. 13 to Satius regarding Satius's response to Samsung's invalidity contentions, Satius states that Satius's response is premature and declines to provide responsive discovery. That statement provides no basis for declining to respond to Samsung's contentions. For Interrogatory No. 14 regarding objective indicia, Satius has had Samsung's invalidity contentions for months, and yet Satius responds that contention discovery is premature. Again, that statement provides no basis for declining to provide discovery of Satius's contentions. For Interrogatory No. 10 regarding Satius's valuation of this lawsuit and assessment of any damages, Satius states that it does not understand the foregoing and improperly declines to provide its contentions regarding the valuation of this lawsuit and its damages theory. For Interrogatory No. 7 regarding Satius's damages contentions, Satius likewise appears to stay largely silent and declines to set out its contentions. For Interrogatory No. 8 regarding whether Satius is pursuing a damages theory with respect to non-U.S. activities, Satius declines to answer the question. For Interrogatory No. 11, Satius invokes Rule 33(d), but does not actually cite to any documents, which is an improper use of the rule.

It is difficult to understand what is going on with Satius's interrogatory responses; this is a pretty fundamental failing to provide basic discovery in the case.

We are available to meet and confer at 1:00 p.m. tomorrow, so that this can be immediately resolved. Please use the below dial in:

7-Digit Access Code: 1952466

Toll-Free Number (U.S. and Canada): +1-866-798-7071

Toll Number (U.S. and Canada): +1-830-221-9129

If that does not work, we are pretty broadly available tomorrow; just give us some advance time for the time you request tomorrow.

Regards,

Brian

**Brian Bieluch**

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---

**From:** Robertson, Sean <[SRobertson@KRAMERLEVIN.com](mailto:SRobertson@KRAMERLEVIN.com)>

**Sent:** Monday, July 15, 2019 5:43 PM

**To:** [apoff@ycst.com](mailto:apoff@ycst.com); [pkraman@ycst.com](mailto:pkraman@ycst.com); Rainey, Richard <[RRainey@cov.com](mailto:RRainey@cov.com)>; Bieluch, Brian <[bbieluch@cov.com](mailto:bbieluch@cov.com)>; Wilson, Paul <[pwilson@cov.com](mailto:pwilson@cov.com)>; Flynn, Patrick N <[PFlynn@cov.com](mailto:PFlynn@cov.com)>; Nieberg, Gregory <[gnieberg@cov.com](mailto:gnieberg@cov.com)>

**Cc:** [asilverstein@potteranderson.com](mailto:asilverstein@potteranderson.com)

**Subject:** Satius Holding, Inc. v. Samsung Electronics Co., Ltd., et al. - Case No. 18-cv-00580-MN-CJB - Service

Counsel,

Attached please find the following documents for service in the above-referenced matter:

- Plaintiff Satius Holding, Inc.'s Objections and Responses to Second Set of Requests for Production of Documents of Defendants Samsung Electronics Co., Ltd., and Samsung Electronics America, Inc. (Nos. 28-33)
- Plaintiff Satius Holding, Inc.'s Objections and Responses to the First Set of Interrogatories of Defendants Samsung Electronics Co., Ltd. And Samsung Electronics America, Inc. (Nos. 1-14)

Best,  
Sean

**Sean Robertson**

Paralegal

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# EXHIBIT H

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE**

SATIUS HOLDING, INC.,	)	
	)	
Plaintiff,	)	
	)	C.A. No. 18-850-MN-CJB
v.	)	
	)	<b>DEMAND FOR JURY TRIAL</b>
SAMSUNG ELECTRONICS CO., LTD., and	)	
SAMSUNG ELECTRONICS AMERICA,	)	
INC.,	)	
	)	
Defendants.	)	
	)	

**PLAINTIFF SATIUS HOLDING INC.'S  
IDENTIFICATION OF ACCUSED PRODUCTS AND PATENT**

Plaintiff Satius Holding, Inc. ("Plaintiff"), by its undersigned counsel, hereby submits the following initial disclosures to Defendants Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc., ("Defendants"), pursuant Section 7(a) of the Court's Rule 16 Scheduling Order dated December 10, 2018 (D.I. 20, the "Scheduling Order").

These disclosures are based on information now reasonably available to Plaintiff and represent a good faith effort to identify information that Plaintiff reasonably believes to be required in these disclosures. Plaintiff is continuing to investigate facts, issues, and law relevant to this action and expressly reserves the right to modify, amend, supplement and/or correct the information provided in these disclosures as information becomes available.

**I. Accused Products**

After a reasonable investigation and based on currently available information, Plaintiff identifies the following products as the "Accused Products" against Defendants including all versions of: the Galaxy S9, Galaxy S9+, Galaxy S8, Galaxy S8+, Galaxy S8 Active, Galaxy S7,

Galaxy S7 edge, Galaxy S7 active, Galaxy S6, Galaxy S6 edge, Galaxy S6 edge+, Galaxy S6 Active, Galaxy S5, Galaxy S5 Active, Galaxy S5 Mini, Galaxy S5 Sport, Galaxy S4, Galaxy S4 mini, Galaxy, S4 Active, Galaxy SIII, Galaxy SII, Galaxy Note8, Galaxy Note5, Galaxy Note4, Galaxy Note3, Galaxy Note II, Galaxy Note edge, Galaxy, Galaxy Core Prime (Cricket), Galaxy J3, Galaxy J7, Galaxy Mega, Galaxy Alpha, Galaxy Grand Prime, Galaxy Core Prime, and Galaxy Amp Prime (collectively, “Samsung Phones”) and all versions of: the Galaxy Tab S3, Galaxy Tab A, Galaxy Book, and Galaxy View (collectively, “Samsung Tablets”).

Plaintiff does not waive the attorney-client privilege, attorney work product privilege, or any other privileges in connection with the information provided herein. Plaintiff will supplement this section to add other accused products, including any cellular mobile phones, tablets, and devices, as relevant information becomes available. Plaintiff reserves the right to seek discovery from and relating to any such other phones, tablets and devices as they become known.

## **II. Asserted Patent**

After a reasonable investigation and based on currently available information, Plaintiff identifies the following patent as the “Asserted Patent” – U.S. Patent No. 6,711,385. Separately and pursuant to Section 7(a) of the Scheduling Order, Plaintiff will produce the file history for the Asserted Patent.

## **III. Damages Model**

Because discovery has not yet commenced, at the present time, Plaintiff is unable to calculate the amount of each category of damages that it is seeking in this action. Such calculations are dependent upon details and information that Defendants have not yet provided including financial figures regarding the sales of the Accused Products and other revenue

generated collaterally through the sales of the Accused Products. In addition to the sales figures for the Accused Products that Defendants are to produce pursuant to Section 7(b) of the Scheduling Order, Plaintiff will also seek documents and data from Defendants that identify relevant financial information pertaining to damages.

Notwithstanding the foregoing, pursuant to 35 U.S.C. § 284, Plaintiff is entitled to and will seek at least a reasonable royalty for Defendants' selling, offering for sale, using, making, and/or importing into the United States the Accused Products. This measure requires data known only to Defendants at the present time. Plaintiff may also seek treble damages and an award of attorneys' fees as provided pursuant to 35 U.S.C. §§ 284, 285.

Plaintiff reserves the right to supplement this disclosure once discovery, including testimony and documents, are obtained and evaluated.

POTTER ANDERSON & CORROON LLP

OF COUNSEL:

Paul J. Andre  
Lisa Kobialka  
Greg Proctor  
KRAMER LEVIN NAFTALIS  
& FRANKEL LLP  
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(650) 752-1700

Shannon H. Hedvat  
KRAMER LEVIN NAFTALIS  
& FRANKEL LLP  
1177 Avenue of the Americas  
New York, NY 10036  
(212) 715-9100

Dated: December 21, 2018  
6033860

By: /s/ Alan R. Silverstein  
Alan R. Silverstein (#5066)  
Hercules Plaza  
P.O. Box 951  
Wilmington, DE 19899  
(302) 984-6000  
asilverstein@potteranderson.com

*Attorneys for Plaintiff*  
SATIUS HOLDING, INC.

**CERTIFICATE OF SERVICE**

I, Alan R. Silverstein, hereby certify that, prior to 6 p.m. on December 21, 2018, the within document was served on the following counsel as indicated:

**VIA ELECTRONIC MAIL**

Adam W. Poff  
Pilar G. Kraman  
Young Conaway Stargatt & Taylor, LLP  
1000 N. King Street  
Wilmington, DE 19801  
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Palo Alto, CA 94306  
[pflynn@cov.com](mailto:pflynn@cov.com)  
[Samsung-Satius@cov.com](mailto:Samsung-Satius@cov.com)

/s/ Alan R. Silverstein  
Alan R. Silverstein

# EXHIBIT I

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE**

PRAGMATUS AV, LLC,

Plaintiff,

v.

YAHOO! INC.,

Defendant.

)  
)  
)  
)  
)  
)  
)  
)  
)

Civil Action No. 11-902-LPS-CJB

**ORDER**

At Wilmington, Delaware, this **25th day of June, 2013**.

On June 13, 2013, Defendant Yahoo! Inc. (“Yahoo!”) filed a Motion for Teleconference to Resolve Discovery Dispute. (D.I. 159) In subsequent letter briefs, the parties set out their positions regarding two disputed issues, only the first of which is ripe for resolution. (D.I. 161, 162) With respect to the first dispute, Yahoo! requested that Pragmatius AV, LLC (“Pragmatius”) be required to supplement its response to Yahoo!’s Interrogatory Number 12, which requests:

For each asserted claim of the Patents-in-Suit that You contend is valid, describe in detail the complete legal and factual basis for Your contention, including a chart that overcomes each prior art reference Yahoo! asserts as invalidating each asserted claim, on a limitation by limitation basis.

(D.I. 161 at 1) On June 21, 2013, the Court held a teleconference with counsel for the parties to attempt to resolve this dispute. Later that same day, pursuant to the Court’s Order, Pragmatius submitted a copy of its infringement contentions to aid in the Court’s resolution of the disputed issue. (D.I. 163)

Federal Rule of Civil Procedure 33(b)(3) provides that: “[e]ach interrogatory must, to the extent it is not objected to, be answered separately and fully in writing under oath.” Fed. R. Civ. P. 33(b)(3). In addition, the Scheduling Order entered in this case states that “[i]n the absence of



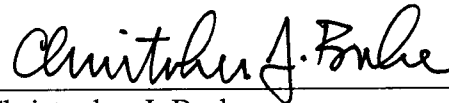
agreement among the parties, contention interrogatories, if filed, shall first be addressed by the party with the burden of proof. The adequacy of all interrogatory answers shall be judged by the level of detail each party provides; i.e., the more detail a party provides, the more detail a party shall receive.” (D.I. 18 at ¶ 3(d)(ii))

After reviewing the parties’ submissions and relevant legal authority, the Court finds that Pragmatus’ response to Yahoo!’s Interrogatory Number 12 is insufficient. Specifically, a review of Yahoo!’s invalidity contentions reveals that they are quite detailed, in that, for each limitation of the asserted claims, Yahoo! provides excerpts from specific references relating to the prior art systems at issue, which allegedly disclose the limitation at issue; in many cases, Yahoo! highlights portions of those excerpts that it deems to be most relevant in bold lettering. (*See, e.g.*, D.I. 161, ex. D at 2) In comparison, Pragmatus’ validity contentions are not remotely as detailed. Instead, in its response to Yahoo!’s Interrogatory Number 12, Pragmatus simply states, without further explanation, that every single limitation from every asserted patent is missing from the ten prior art bases Yahoo! identified in its invalidity contentions. (*See, e.g., id.*, ex. A at 6-7)

Thus, the Court finds that Pragmatus should have to fully answer Yahoo!’s Interrogatory Number 12. In so doing, Pragmatus may note its objections to Yahoo!’s identification of its anticipation references (such as Yahoo!’s alleged failure to sufficiently prove that the references “should be considered to be part of the same basis”). (*See* D.I. 162 at 2) However, after setting out those objections, Pragmatus must still make a good faith attempt to otherwise fully answer the interrogatory at issue—to in some way address the substance of Yahoo!’s assertion that each limitation is met by a particular system. *See Mazzella v. RCA Global Commc’ns, Inc.*, No. 83

Civ. 3716 (WCC), 1984 WL 55541, at \*11 (S.D.N.Y. Mar. 28, 1984) (ordering the defendants to provide interrogatory answers but permitting the them to state “any caveats as to possible errors in the information being supplied”). Pragmatius should accomplish this by providing its responses in chart form, in the format previously used in Pragmatius’ infringement contentions and Yahoo!’s invalidity contentions.<sup>1</sup>

Therefore, the Court hereby ORDERS Pragmatius to produce to Yahoo! a supplemented response to Yahoo!’s Interrogatory Number 12 by **July 15, 2013**. Yahoo! will then be required to provide its obviousness combinations to Pragmatius by **July 24, 2013**. Taking into account Yahoo!’s obviousness combinations, Pragmatius will thereafter by further required to supplement its response to Yahoo!’s Interrogatory Number 12 by **August 14, 2013**.



Christopher J. Burke  
UNITED STATES MAGISTRATE JUDGE

---

<sup>1</sup> To the extent that Pragmatius argues that its response should be deemed sufficient because Yahoo! provided a similar level of detail in its non-infringement contentions, the Court is not persuaded. The Court agrees that both sets of responses do not provide much in the way of detail, with Yahoo!’s response being only slightly more robust. But even assuming these two responses are similar in detail, the Court considers Yahoo!’s response to Pragmatius’ interrogatory requesting information regarding Yahoo!’s non-infringement contentions to be a separate issue. If Pragmatius believes that Yahoo!’s non-infringement contentions are insufficient it may press Yahoo! to supplement further, and utilize the Court’s discovery dispute procedures if it does not receive a legally sufficient response.

# EXHIBIT J

1  
IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE  
SATIUS HOLDING, INC., :  
Plaintiff, : C.A. No. 18-cv-0850-MN-CJB  
v. :  
SAMSUNG ELECTRONICS CO. :  
LTD., et al., :  
Defendants. :  
  
Monday, December 3, 2018  
3:00 p.m.  
  
Case Management Conference  
Chambers of Judge Christopher J. Burke  
  
844 King Street  
Wilmington, Delaware  
  
BEFORE: THE HONORABLE Christopher J. Burke,  
United States District Court Magistrate  
  
APPEARANCES:  
  
POTTER ANDERSON & CORROON, LLP  
BY: ALAN SILVERSTEIN, ESQ.  
  
-and-  
  
KRAMER LEVIN NAFTALIS & FRANKEL LLP  
BY: SHANNON HEDVAT, ESQ.  
  
On behalf of Plain iff

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1 APPEARANCES CONTINUED:  
2  
3 YOUNG, CONAWAY, STARGATT & TAYLOR, LLP  
BY: PILAR KRAMAN, ESQ.  
4  
5 -and-  
6  
7 COVINGTON & BURLEY LLP  
BY: RICHARD RAINEY, ESQ.  
BY: PATRICK FLYNN, ESQ.  
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9 On behalf of Defendants  
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1 THE COURT: We'll go on the record  
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3 and as we do, let me just say a few things for  
4 the record. The first is that we're here today  
5 for a case management conference here in  
6 chambers in the matter of Satius Holding, Inc.  
7 v. Samsung Electronics Co. Ltd., et al. This is  
8 Civil Action No. 18-850-MN-CJB here in our  
9 court.  
10  
11 And because we're here on the  
12 record, I have with us a court reporter from the  
13 Hawkins Reporting Service who will be taking  
14 down our call today. Before we go further, let  
15 me have counsel for each side identify  
16 themselves for the record. And we'll start  
17 first for the Plaintiff's side and we'll begin  
18 there with Delaware counsel.  
19  
20 MR. SILVERSTEIN: Good afternoon,  
21 Your Honor. Alan Silverstein from Potter  
22 Anderson & Corroon for Satius Holding. With me  
23 today is Shannon Hedvat from Kramer Levin law  
24 firm.  
  
THE COURT: Welcome and thank you.  
And we'll do the same for counsel on the  
Defendants' side and again we will begin with

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1 Delaware counsel.  
2  
3 MS. KRAMAN: Good afternoon, Your  
4 Honor. Pilar Kraman from Young Conaway for  
5 Samsung. And with me at counsel table is  
6 Richard Rainey and Patrick Flynn from Covington.  
7  
8 THE COURT: Welcome to all of you  
9 and thank you. Counsel, let me just start by  
10 going over a couple of things that kind of fall  
11 under the category of procedural issues and then  
12 we can talk substance as well. The first is  
13 just to reiterate a bit about my role in the  
14 case.  
15  
16 The case has been assigned to  
17 Judge Noreika and she referred it to me to  
18 handle and resolve all disputes up to and  
19 including expert discovery so that's what I'll  
20 do, and I'll be responsible for addressing  
21 issues or motions that get raised in the first  
22 instance up through the close of the expert  
23 discovery period with Judge Noreika obviously  
24 taking things from there through to trial.  
  
One thing that we'll talk about in  
a bit, I know the parties have provided a  
proposed case schedule here and obviously they

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1 Honor. I would say the only primary issue we  
2 could anticipate may arise is with respect to  
3 the core technical production as outlined in our  
4 letter submission to the Court. During the  
5 meet-and-confer process, Defendants sought for  
6 us to limit or specifically identify the  
7 products that we believe should be subject to  
8 the core technical production and to identify  
9 the products that will be the scope of what's  
10 accused in this case.  
11 It's our position that until  
12 discovery is underway we can not be restricted  
13 in any manner and that we have laid out in the  
14 scheduling order the identification of the  
15 accused products for which we expect the full  
16 core technical document production and then a  
17 year of discovery and then our final  
18 identification is next December of 2019, so the  
19 main issue we hope will not be at issue but  
20 maybe is whether the scope of the core technical  
21 production will be up to what we expect and are  
22 entitled to.  
23 THE COURT: Certainly, the  
24 Plaintiffs are entitled to core technical

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1 documents, whatever that amounts to for these  
2 products. It sounds like the Defendants were  
3 anticipating some dispute about whether the core  
4 technical document production needs to go beyond  
5 what they term documents relating to impedance  
6 tuner functionality.  
7 I don't have a lot of information  
8 before me about that issue. But to the extent  
9 it seems like they're trying to head off further  
10 disputes later, is there anything the Plaintiff  
11 wants to say about what you think this dispute  
12 might really be about and what might come up  
13 later between the parties based on what you  
14 understand now?  
15 MS. HEDVAT: It's hard to know  
16 because we don't know the type of documents that  
17 Defendants maintain with respect to technical  
18 functionalities of the accused products.  
19 Clearly, we've identified in the Complaint what  
20 are the accused functionalities and we will be  
21 providing in a couple of weeks the  
22 identification of the accused products, so we  
23 would expect that at a minimum the core  
24 technical document production should pertain to

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1 specifications and other documents relating to  
2 those functionalities we've identified.  
3 THE COURT: Okay. Let me turn to  
4 counsel for Defendants' side and see if there's  
5 anything they want to add about this issue.  
6 MR. RAINEY: We do, Judge. I know  
7 the Court is familiar with this where we have a  
8 situation Samsung Electronics that has  
9 thousands, if not tens of thousands of  
10 electronics products which have communication  
11 functionality of varying degrees, so it can  
12 simply be that we're going to be searching for  
13 documents having to do with communication about  
14 all of our products.  
15 So one of the things that  
16 concerned us is what we perceive to be the  
17 shifting scope of this case. The Complaint in  
18 this case identifies three chips, if you will,  
19 that have these alleged impedance tuners in  
20 them, two Shannon chips and a Qualcomm chip.  
21 There are two issues that flow from that.  
22 One is what is the scope of if  
23 it's impedance tuner and that's the issues we're  
24 going to be searching for. That may be one

20  
1 issue. If it's no communication vehicle  
2 whatsoever no matter what it happens to have in  
3 it, that's going to be a dispute that we  
4 certainly will be before Your Honor on.  
5 I think the scope of what the --  
6 and this Court is well familiar with what is the  
7 accused functionality here as one issue. The  
8 second issue relates to the Shannon chips.  
9 Those are chips that as I understand it are made  
10 solely for products that are produced and sold  
11 outside of the United States.  
12 Obviously, Samsung is a Korean  
13 based company and they have products that are  
14 solely for outside the U.S. market, and the  
15 Shannon chip is such a product. So one of the  
16 other issues that we've attempted to tee up is  
17 are they going to be seeking production of  
18 documents related to products solely made for  
19 the outside U.S. market. And if that is the  
20 case, we're going to have a second dispute I'm  
21 almost certain we're going to be raising before  
22 Your Honor.  
23 THE COURT: On the first issue, it  
24 could be that there's one or the other or both

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1 of the following issues that you're  
2 highlighting. It sounds like in part what  
3 you're wondering is when it comes to the accused  
4 functionalities, what am I looking for to help  
5 me determine whether beyond the specifically  
6 identified accused products whether the  
7 Plaintiff is also asserting, look, if there are  
8 products that are substantially similar, we're  
9 also going to be accusing them.  
10 MR. RAINEY: Right.  
11 THE COURT: Then secondly, it also  
12 sounds like it might also be a dispute along the  
13 lines of and even as to the products that we  
14 know are being specifically identified, there's  
15 a lot of potential documentation out there as to  
16 those products that relate to how they work.  
17 We're trying to hone in on what is going to be  
18 the core technical documents as to those. Are  
19 those both issues that are kind of in your mind?  
20 MR. RAINEY: For sure.  
21 THE COURT: And to Plaintiff's  
22 counsel as to the second issue, the question  
23 being to the extent that we have accused  
24 products that may use chips and are solely

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1 extraterritorially outside the U.S., are those  
2 going to be potentially at issue in the case?  
3 And Judge Stark has a decision recently that  
4 relates to this issue.  
5 I have not addressed it previously  
6 so if it comes up, it will be the first time for  
7 me. But is that going to be a dispute as far as  
8 you know in the case?  
9 MS. HEDVAT: The short answer,  
10 Your Honor, is it could be. Until we have  
11 discovery on these chips and functionalities  
12 that they are claiming are solely related to  
13 products outside of the U.S., it's hard for us  
14 to anticipate and know whether the international  
15 sales could be subject to damages and other  
16 aspects of the litigation, but it's our position  
17 that we shouldn't be foreclosed from that  
18 discovery at this juncture so early on.  
19 THE COURT: Well, the guidance I  
20 can give you at this stage is pretty limited.  
21 Obviously, it's helpful when we know that there  
22 are going to likely be disputes between the  
23 parties about the initial two stages,  
24 particularly the second stage of the disclosures

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1 process, it's helpful to have as much  
2 communication as possible between the sides to  
3 try to head off potential disputes before they  
4 materialize to discovery disputes before the  
5 Court.  
6 It sounds like you have made some  
7 attempts in that regard already. I certainly  
8 encourage the parties to continue to talk to see  
9 if they can reach some agreement as to those  
10 issues. To the extent you can and to the extent  
11 you're aware that there are disputes, obviously  
12 the parties can raise those with the Court  
13 pursuant to the court's discovery dispute  
14 procedures that are in the scheduling order that  
15 you're going to submit.  
16 Sometimes it's the case that  
17 there's a deadline for core technical document  
18 production and it's just not the ability to get  
19 that dispute teed up before that deadline hits.  
20 If that happens, then obviously the party who's  
21 making that production should do its best in  
22 what it considers to be a full and fair  
23 production of core technical documents. And if  
24 it believes in that span is excluded something

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1 that the Plaintiff knows should be included, we  
2 will tee that up as soon as we can when we go  
3 through the court discovery dispute procedures.  
4 I think that issues that the  
5 parties raised today are ones that if they can't  
6 be resolved are going to be fit for resolution  
7 in those procedures, so I will deal with those  
8 as they arise.  
9 Okay. Were there any other issues  
10 that the Plaintiff wished to raise at this time?  
11 MS. HEDVAT: No, Your Honor.  
12 Thank you.  
13 THE COURT: And on the Defendants'  
14 side, Mr. Rainey, anything that we haven't  
15 talked about that the Defendants wanted to raise  
16 or highlight?  
17 MR. RAINEY: The only other issue  
18 I think, Judge, that might be worth just  
19 discussing briefly is the issue of emails. I  
20 think this is teed up somewhere in the papers we  
21 submitted. This is, at least as the Complaint  
22 is packaged right now, is a direct infringement.  
23 There's no allegations of willful infringement.  
24 There's no allegations of induced infringement.

# EXHIBIT K

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE**

GLAXOSMITHKLINE LLC and )  
SMITHKLINE BEECHAM (CORK) )  
LIMITED, )  
 )  
Plaintiffs, )  
 )  
v. )  
 )  
TEVA PHARMACEUTICALS USA, INC., )  
 )  
Defendant. )

Civil Action No. 14-878-LPS-CJB

**ORDER**

At Wilmington this **28th day of January, 2016**.

**WHEREAS**, the Court has considered the parties' letter submissions, (D.I. 98, 99), relating to Defendant Teva Pharmaceuticals USA, Inc.'s ("Teva") pending discovery-related motion, (D.I. 97), as well as the parties' arguments made during today's teleconference with the Court;

**NOW, THEREFORE, IT IS HEREBY ORDERED** that:

1. With regard to Teva's Interrogatory No. 5, the Court understands that dispute to now be MOOT.
2. With regard to Teva's Interrogatory No. 12, the Court ORDERS that by no later than **February 17, 2016**, Plaintiffs GlaxoSmithKline LLC and SmithKline Beecham (Cork) Limited (collectively, "GSK") shall provide Teva with a Second Supplemental Response relating to GSK's claim for lost profits damages. This response shall amount to a meaningful articulation of the bases for GSK's contention that it is entitled to such damages. It shall further include a



narrative explanation as to how the information contained in any of the documents referenced in GSK's First Supplemental Response to this interrogatory, (D.I. 98, ex. B at 21), shed light on GSK's contention that it is entitled to lost profits damages, (*see, e.g.*, D.I. 99 at 2 n.6 & exs. D-E).

3. With regard to Teva's Requests for Production Nos. 3, 4, 10, 11, 13 and 14, by no later than **February 17, 2016**, the parties shall: (1) meet and confer to determine whether they can reach agreement on a reasonable and focused number of additional steps that GSK will take, in order to further search for responsive documents; and (2) submit a joint letter of no more than two single-spaced pages that informs the Court as to whether the parties have reached an agreement on the issue. If the parties do not reach agreement, the letter should also include: (1) Teva's position as to the specific further steps that the Court should order GSK to take, in order to locate responsive documents (e.g., identification of a limited number of additional search terms that GSK should use, or a limited number of additional locations where GSK should search), as well as an explanation of why these step(s) are both reasonable and focused, and (2) a response from GSK as to why it believes such steps are not appropriate.

4. With regard to Teva's Requests for Production 64-66, in light of GSK's response, (D.I. 99 at 4), the Court understands this issue to now be MOOT.

5. With regard to the production of electronically stored information from GSK's five custodians, (D.I. 98 at 2), the Court ORDERS that GSK shall produce all such documents by no later than **February 17, 2016**.



Christopher J. Burke  
UNITED STATES MAGISTRATE JUDGE